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ORIGINAL ARTICLES.

CLIMATIC CONDITIONS IN THE ROCKY MOUNTAINS FOR THE TREATMENT OF PHTHISIS AND ALLIED AFFECTIONS.

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BROADLY speaking, the whole Rocky-Mountain region offers exceptional advantages in climatic conditions for the treatment of phthisis and allied affections, yet, on comparing different localities in this vast region, it readily appears that they are not all suitable as places of residence for invalids, and that a careful examination is necessary of the elements which together make up the character of any given place before we can safely recommend its sanitary qualifications.

It is not wise without further examination to accept as good evidence the statements of persons interested in real estate and commercial speculations, for these are often notoriously unreliable. Wherever a town or region is being "boomed," there is sure to be loud advertisement of all the various advantages possessed, and of many that are not possessed by the spot in question. The real-estate speculators and settlers discovered early in the history of the settlement of the West that a constant influx of seekers after health, adds materially to the prosperity of the community which they favor with their presence. Hence the chambers of commerce and other public, as well as private, organizations find it remunerative to advertise their locality as "the world's sanitarium," the "Mecca of invalids," etc. Frequently considerable sums of money are spent in such ways that might much better be applied in improving local defective sanitary arrangements.

One of the best advertised towns in the Southwest in this respect is Phœnix, Ariz., and now that another boom has begun in this miscalled health resort, it is time to call the attention of physicians in the East to the difference that exists between a region useful for agricultural and land speculation purposes and one which can properly be recommended for the climatic treatment of throat and lung troubles. The writer having spent four months in winter at Phœnix, and several winters and springs in other parts of the Southwest, considers it his duty to strike a note of warning for the benefit of those who are not so well acquainted with the conditions in that part of the world.

Every one who has had the opportunity of observing a number of phthisical patients for a time after their arrival in Colorado from the East, and has noted the rapidity with which, in a large proportion of the cases, their whole aspect improves, cannot help concluding that there is a tonic effect due to this climate which is far more powerful than that of drugs. This rapid improvement is most noticeable in incipient cases, and, generally, in those in which destruction of lung tissue has not far progressed. But even in cases well advanced in phthisis, an invigorating climate, if not too cold or at too great an altitude, is a material aid to the comfort of invalids. If patients must be sent to Arizona for the winter, why select the most enervating region to place them in, when much better spots are near at hand? Because Phœnix and the Salt-River Valley are productive of fruit and alfalfa, they are not necessarily suited to the purposes of the health-seeker.

The uncritical lay mind argues that, because a certain proportion of cases improve in Phœnix, that town is a good place for consumptives. Every physician knows that not a few cases of tuberculosis of the lungs get well even in New York city, but no one is tempted on that account to send consumptives there for the cure of this malady.

Phœnix lies in the Salt-River Valley, in the southern middle portion of Arizona. The valley has an extent of about sixty miles in length by twenty in breadth. At a short distance below the surface of the soil, at a depth varying, in the neighborhood of the city, from ten to forty feet, there is a permanent lake, one might say, of brackish water. The waterworks of Phœnix are supplied with this water pumped from a well fourteen feet deep, and situated within the outskirts of the city. As the rainfall in Arizona is very scanty, agriculture is carried on by the help of irrigation on a large scale, practically all the water of the Salt River being used for this purpose. The result is that the humidity of the air is comparatively high; in

summer there are regularly heavy dews, and in winter hoar-frosts are far from uncommon.

The town itself, in winter and spring, the only seasons when one would think of sending invalids there, is unhealthful, there being a great deal of sickness, not only among the visitors, but as well among the resident population. This is not to be wondered at when one observes the sanitary arrangements of the place. On both sides of each street run irrigating ditches. These carry running water for several days, and then are empty, with the exception of stagnant pools remaining here and there along their courses, for a period of three or four days more, while the hot Southern sun dries into dust the often noisome filth which covers the bottom. When I visited Phœnix three years ago it was the custom to clean the down-town ditches from time to time, and throw this nasty, ill-smelling black filth into the middle of the street, where the sun rapidly dried it, and the passing wagons ground it into dust and spread it in the air.

There are few cases of tuberculosis benefited in this climate, according to my observations on the spot, in comparison with the number who do well at points farther east in Arizona, in New Mexico, and in Colorado. The climate of Phœnix is depressing, not invigorating. The food and accommodations are very little, if any, better than can be procured in any large town in New Mexico, and are not what they should be for the majority of those who are obliged to seek a warm climate on account of lung trouble.

Phœnix is situated at an altitude of eleven hundred feet only, not enough to satisfy the indication where altitude is desirable in the treatment of tuberculosis. If dryness of atmosphere is desired, it is again far behind many other towns in Arizona and New Mexico.

Unless the streets are continually kept heavily sprinkled the dust is almost unbearable, the soil being chiefly the well-known adobe, which, when dry, forms the finest powder, and is whirled into the air in clouds by every passing vehicle.

The sanitary conditions are better on ranches outside the town, the other factors of the climate remaining the same.

Only in cases with a very weak heart does there seem to be a good reason for preferring the Salt-River Valley to the more bracing climates in the higher districts farther east, and here I am inclined to think that the low desert in the western part of the territory and in southeastern California offers a better, because dryer, climate.

Tucson, Ariz., is about 120 miles Southeast of Phœnix, on the Southern Pacific Railroad. It is more easily reached, and has a far better climate, than the latter town. It is, by comparison, bracing and far more suitable to the majority of cases of phthisis. It has an excellent climate in winter and spring, and is one of the best of the Southern resorts in this respect, though there is some dust, as there is almost everywhere in the Southwest. Unfortunately there is as yet no first-class hotel in Tucson, but fair accommodations can be found. Keeping house is perhaps the most satisfactory way of living. The altitude of Tucson is 2,400 feet.

Forty miles north of Tucson, in the foothills of the Catalina Mountains, is the little hamlet of Oracle. This offers an almost ideal climate eight months in the year for those cases that are too weak to profit by the more stimulating climate of Colorado. It is reached by stage from Tucson in five to six hours, and has several substantial advantages over the towns which, like Phœnix, are situated in the midst of a level agricultural district. Nestling among the hills, high above the valley of the San Pedro River, it is surrounded by unusually attractive scenery, which gives all its walks and drives a perennial charm.

Oracle has no dust, it is even out of range of the dust storms which periodically sweep the whole Southwest. Its altitude is 4,500 feet.

There are several other towns in Arizona and New Mexico which offer a haven for invalids during the bad months. Arizona is sheltered by mountain ranges from the cold northern winds and storms, and is consequently a few degrees warmer than the valley of the Rio Grande in New Mexico. In each territory there are over 320 sunny days in the year, and invalids can spend nearly every day out of doors.

El Paso, Tex.; Las Cruces, Las Vegas, and Las Vegas Hot Springs, of New Mexico, which are close neighbors, have a very good climate, and are annually visited by numbers of health-seekers. Albuquerque and Santa Fé also have their share of visitors.

The elements which together make up the best climate for tuberculous patients are a pure, dry atmosphere, plenty of sunshine, a temperature low enough to be invigorating, and freedom from storms, especially cold wet ones. The effect of altitude seems to be that of stimulating the system, and in cases that have considerable power of reaction the value of this factor may be very great.

All these climatic conditions may be found

combined in varying degrees in the larger part of the area included in Colorado, New Mexico, and Arizona. Everywhere within these limits the number of days on which these invalids need to remain indoors on account of bad weather is very small, as may be inferred from the small amount of rain. The average annual precipitation in Denver for the years 1891, '92, and '93, as given in the reports of the Weather Bureau was 14.97 inches, while for the same years that of New York was 44.45 inches, almost three times as much. In New Mexico and Arizona there is even less rain than in Colorado.

The temperature is never too low to permit an out-of-door life, even in Colorado. The air is dry, except in a few comparatively small areas where irrigation is carried on largely, and its clearness and purity are a perpetual delight to visitors from the east. As we go farther north, the ease with which good accommodations and food are procured steadily increases, and the climate becomes cooler and more bracing.

In conclusion, I wish to offer a few suggestions in regard to a proper selection of climate to suit the various types of cases. Incipient, uncomplicated cases, as a rule, do best in a dry, tonic climate of fairly high altitude. Weak heart, when not due to organic lesion, unless very pronounced, is not a contra-indication for an altitude of 5000 to 6000 feet. On the contrary, as the general health improves, the heart usually grows stronger and the pulse becomes slower.

For cases somewhat further advanced, with breaking down of lung tissue, but otherwise in fair condition, the same climate is useful; that is, high altitude and a cool, dry station. Such a climate is furnished by Colorado. One weighty reason for the selection of Colorado as the residing-place of invalids is the ease with which, in its numerous progressive towns and well-settled rural districts, suitable food and accommodations can be procured. As Dr. Osler says, "In this disease the *primæ viæ* control the position," and it is very important that the appetite and digestion should not be interfered with by coarse and unappetizing food. In this respect there is still much left to be desired in most of the resorts of New Mexico and Arizona.

In the case of those far advanced in the course of the disease, with large cavities, etc., it is often advisable, even if not absolutely necessary, that at least the coldest months of the year, say from the middle of December to the middle of May, be spent in a warmer climate free from very cold weather. This can be found in New Mexico, Arizona, and old Mexico. I do not here mention California, for my belief is that the popular and populous parts of Southern California are inferior in value for the purpose under consideration to the dry regions mentioned above.

Cases with organic heart lesion or other serious complication, and those which seem to offer slight resistance to the progress of the disease, are usually better off at low altitudes, and these often bear a fairly warm summer climate quite well. Cases far advanced, with well-marked cavities, high fever, and great general debility, should not, as a rule, be sent from home.

Sometimes it is advisable for a patient to spend the hottest part of the summer in some of the lovely, cool mountain parts of Colorado: the autumn in the altitude of Colorado Springs or Denver, and the winter and early spring in a more southern latitude.

ANTIPHTHISIN.[1]

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ANTIPHTHISIN is one of the remedies recently introduced for the treatment of tuberculosis. It is the result of efforts to discover a substance that will destroy the germ and directly affect the specific tubercular process.

And this is the claim that its originator makes for it: that it "causes the destruction and disappearance of the tubercle bacillus in living tissue, and the return of the proliferated and degenerated cells to their normal appearance." Notice that the claim for the destruction of the bacilli is in "living tissue" only. A moment's consideration will convince us that this is the limit of any germicide acting upon and through the blood. Bacteria developing in necrotic tissue and caseous masses are not reached by the blood, yet caseous and necrotic areas abound in advanced phthisis. Further, most cases of advanced phthisis have a mixed infection. It is not claimed that antiphthisin will destroy pyogenic germs or directly affect septic processes. Nor can it restore to normal the various degenerations of other organs that are apt to occur in the course of chronic phthisis.

In passing judgment upon any proposed remedy for this disease, we must ever keep in mind these

[1] Read before the Middle Tennessee Medical Association, November 21, 1895.

very varied and serious pathological conditions, and not expect to accomplish impossibilities.

But if antiphthisin will do all that is claimed for it, that is, destroy the tubercle bacilli in living tissue, it will do all we can reasonably expect of any remedy, so far as the purely tubercular process is concerned. If it will do this, we may expect definite and decisive results in tuberculosis of an early stage, and the effect will be more prompt the more vascular the tuberculous area. Even in more advanced phthisis, it is fair, I think, to expect benefit from such a remedy provided the patient has a good degree of general health, with not too extensive areas of caseation and necrosis. In such conditions, we can logically hope to restore the still living tuberculous tissue to health, and thus limit the destructive process; and by continuing the treatment a sufficient length of time, prevent further infection while the caseous mass is being absorbed or otherwise disposed of, and thus eventually bring about a cure.

Now, is antiphthisin such a remedy? Does it actually cause the destruction of bacilli in living tissue and show corresponding results in the treatment of tuberculosis? It is as a contribution to the study of the subject and to help answer this question that I report the following cases.

Before beginning this report, let me say that my patients receive my constant, careful supervision in every detail of their daily lives. I endeavor to guard them against everything that may lower their vitality, and to leave nothing undone in the way of hygienic, dietetic, or therapeutic management that makes for improvement. And while my patients have generally not been able financially to live under ideal conditions, I have endeavored to approach the ideal as nearly as possible in each case.

I was first induced to use antiphthisin by my observations of its effects while I was temporary assistant at the Winyah Sanitarium, Asheville, North Carolina. During the previous year I had been there as a patient, and had excellent opportunity to study the use of tuberculin, and had become painfully aware of its limited field of usefulness, because of its toxic properties. When I returned to assist Dr. Von Ruck during the absence of his house physician, I found that he had very generally superseded the use of tuberculin by that of antiphthisin. And while I still felt, as I had previously written, that good results could be obtained by the careful use of tuberculin in selected cases, yet I was favorably impressed with the antiphthisin as compared with the tuberculin, first, because of its more rapid effect, and second, because of its much wider field of application Debility and temperature were no bar to its use. During my stay I gave it hundreds of times to patients in all sorts of phthisical conditions, yet I never saw any but very slight toxic effects, though we gave a few doses as large as 8 c.c.

The first case in which I used it in my own work was Mr. K., aged 26, native of Wisconsin. He had had a hemorrhage several months previously, since which time he had been coughing considerably. Sputum about an ounce in twenty-four hours, with few bacilli. Temperature slightly above normal—99½. Pulse and respiration normal. Some tubercular infiltration through entire upper lobe of right lung, indicated by dullness and broncho–vesicular murmurs. Just below the middle of the clavicle on right side there was a little crepitation and a few moist râles. A little lower there was a weak pleuritic friction sound. There was a weakened respiratory murmur in the left apex, but no further evidence of disease.

He received his first dose of antiphthisin December 23, 1894, and continued it one month.

With him, as with all others, I began with $\frac{1}{20}$ c.c. The second day I gave $\frac{1}{10}$ c.c., and increased by $\frac{1}{10}$ c.c. each day to $\frac{1}{2}$ c.c. I kept him on that amount six days, then increased to 1 c.c., and remained on that a few days, and then again increased to $1\frac{1}{2}$ c.c., the amount he was taking at the end of four weeks, when he stopped treatment. At the end of this time he had gained three pounds in weight, and the cough and expectoration had entirely ceased. The adventitious sounds had disappeared, the respiratory murmur had softened, and so far as could be learned by physical examination, the lungs were in a normal condition. His temperature was normal, and he expressed himself as feeling perfectly well. This man passed out from under my observation, and I cannot report his present condition.

CASE II.—Female, single, aged 21. She began to lose strength and weight in December, 1894. In January, 1895, she began to cough. The cough was of a hacking quality, with only a little expectoration. Bacilli averaged two to a field. May 3d, she had lost ten pounds in weight, appetite poor, sleep restless. Considerable infiltration was apparent in upper lobe of right lung, extending to lower edge of lobe anteriorly; only in apex posteriorly. In the subclavicular region there were a few râles. At one spot near junction of mammary line with lower border of second rib, there was slight crepitation. On the left side there was a deep-seated spot in the upper part of mammary region of nearly or quite complete consolidation. Just what condition this spot was in, it is, of course, impossible to determine positively, but I concluded it was fibroid tissue, with probably some centres of caseous degeneration.

May 4th, I began the use of antiphthisin, beginning with $\frac{1}{10}$ c.c., gradually increasing, as in all other cases. June 12th, she received 3 c.c., which was repeated on the 13th, 14th, and 15th. At this time, the cough had entirely ceased, the temperature was normal, and the appetite better, though there had been no increase of weight. Dulness less marked, respiratory murmur softened, except at the one place in the upper left mammary region. Râles and crepitation had entirely disappeared. While there was no cough, I found that she did raise a little sputum during a throat-clearing process upon rising in the morning. A microscopic examination showed no bacilli, however. After this I was never able to get sputum to examine from this patient.

Because of the expensiveness of antiphthisin, I now placed this patient on a solution of yeast nuclein, giving it by hypodermic injection, according to directions of Dr. Vaughn, of Ann Arbor. June 17th, she received the first dose of nuclein —8 minims—which was gradually increased to 60 minims on July 6th. While receiving the nuclein, she not only did not improve, but the physical signs grew slightly worse, and the cough reappeared.

July 7th, I resumed the antiphthisin, and between that date and August 8th she received 50 c.c. of the remedy. Under it the cough again rapidly disappeared and other signs improved, so that by August 5th, the date of my last examination, there was no evidence of anything abnormal, except in the one area in the upper part of the left mammary region. The right upper lobe, which gave the most marked evidence of active disease at the first examination, was now apparently restored to a normal condition, but the small spot in the upper mammary region of the left side had improved very little, if any, under treatment.

My explanation is this: On the right side, the tubercular infiltration was recent and the circulation good. The stubborn area on the left side was older, and very probably the seat of primary infection. It had undergone fibroid change, with some centres of caseous degeneration. If I am right, this spot continues as a centre for further infection and a source of danger, and she will ultimately have a relapse, unless the treatment is renewed and continued for a considerable length of time. Up to date, she is reported as holding her own and in fair general health.

CASE III.—Female, single, aged 19. Family history of tuberculosis on the mother's side. A maternal aunt, only a little older than the patient, had died from consumption the previous year. The patient had been very intimate with this aunt, and was with her a great deal during her sickness. Patient had a protracted hacking cough, first in the Fall of 1893. This lasted three or four months and then ceased, only to reappear again in a few weeks. It continued to come and go until October, 1894, since which time there had been no cessation. My first examination of her chest was made in February, 1895. From the physical signs alone, I made a diagnosis of phthisis. The mother, however, refused to believe that her girl had consumption. Some wiseacre of a doctor had told her that the cough was from the liver. Nevertheless, she continued to lose flesh, and the cough increased in severity. In May she began to have some fever each day, and had several slight hemorrhages. An examination revealed a moderate number of bacilli in the sputum.

May 28th, I began giving the patient hypodermic injections of nuclein solution, and continued the treatment three weeks. There was no improvement whatever under the nuclein, and I now persuaded the parents to use the antiphthisin. She was now coughing harder than ever, appetite poor, sleep broken and restless, feverishness and chilly sensations frequent, temperature running to 100 and 100½ each day.

The physical signs were those of almost complete consolidation in right subclavicular region,[1] with considerable deposit throughout upper and middle lobes. On the left side there was only slight trouble in the apex. Bronchial râles and pleuritic friction sounds in right subclavicular region. Between June 24th and August 10th, this patient received 67 c.c. of antiphthisin.

Within two weeks after beginning it, she began to show improvement. By August 10th, expectoration had ceased entirely and the cough almost entirely. She gained eight pounds in weight, with corresponding gain in strength and general appearance. There was marked improvement of all physical signs. In the right subclavicular region there was still some dulness, and the respiratory murmur broncho-vesicular in quality, but much less marked than a month previously, while in the other regions these signs had disappeared. August 12th, this patient married, and has never returned for treatment. She is holding her own still as to weight and general appearance, but has a slight cough. She is not cured, and ought to have continued the treatment a month or two longer.

CASE IV.—Male, aged 32. This patient nursed a brother for several months who had consumption and died in March, 1894. In February, 1895, patient had an attack of "grip," from which he never fully recovered. Since that time, had slowly lost in weight and strength.

June 25th, when he began treatment, patient showed decided tubercular infiltration of left upper lobe. There was a small cavity at the left apex, surrounded with crepitant and other moist râles; broncho-vesicular murmur throughout, extending to lower border of second rib. On right side there were no râles, but there was a loud, harsh, bronchial quality in the murmur with a dull percussion note. Not much cough. Expectoration

[1] A visiting physician, a skilled diagnostician, who saw this patient about the time I began to use the antiphthisin, said that he did not believe it possible to prevent the formation of cavity.

muco-purulent, but scant. Bacilli plentiful. Appetite poor, complexion sallow, sleep restless.

His improvement under antiphthisin was never so rapid as that of case III, but was steady and continuous. By the middle of August his appetite was much better, he was decidedly stronger and he slept better. September 27th, I examined his chest the last time. The râles and crepitation had entirely disappeared. The murmur softened to nearly the normal, except just around the cavity, where there is a fibroid condition. On the right side the physical signs were those of a normal chest, except just above and below the clavicle, where there is a slight dulness and a harsh murmur.

This patient received altogether 150 c. c. of antiphthisin. When he began treatment his temperature was running occasionally to 99½, and sometimes to 100. During the last month of treatment it never went above normal. The bacilli disappeared from the sputum before the end of the second month of treatment and the sputum itself disappeared soon after. He is now attending to business apparently in perfect health.

Case V, male, aged 25. This patient was in an advanced stage when he came under my care, October 5, 1895. There is a large cavity in the apex of right lung, active destructive changes going on in the middle lobe and tubercular infiltration throughout entire lung. On the left side there is considerable deposit in the upper lobe, but slight destructive changes. During the first two weeks of October, he had a high septic fever, his temperature running to 105 and 106 every day. Profuse night sweats followed this high temperature. Although a very unfavorable case, at his request I began the use of antiphthisin on October 11th.

The bacilli are now fewer, take the stain less readily, and show degenerative forms. He is expectorating less freely. There are less râles, and in some places the murmur is clearing. His temperature is now much less, rarely ever going over 101 during the past three weeks. There are no night sweats. While the outlook in his case is not bright, the results have been sufficiently encouraging to lead me to continue the remedy. He is now taking 3 c. c. each day, and has received 47 c. c. altogether. I do not suppose that the antiphthisin is controlling the septic fever directly, but I am sure it is limiting and lessening the tubercular process.

It will be noticed that my patients were all under treatment only a comparatively short time. Cases II and III stopped treatment against my judgment because they felt so well as to think they did not need it longer. Case I was under treatment only a month, yet at the end of this time was apparently a well man. Case II was under treatment three months, inclusive of the time she received nuclein. She improved under antiphthisin, lost ground slightly while taking nuclein, and again improved under antiphthisin. Case III showed no improvement from sixteen days' treatment with nuclein, but gained very rapidly during the fifty days she received antiphthisin, and at the end of that time could not be convinced that she was not perfectly well. Case IV was under treatment a little more than three months. He gained very slowly at first, but steadily, and has continued the gain since.

In each of these cases there has been improvement of the lung condition where improvement could be expected; decided lessening, and in two cases entire cessation of cough. In every case except the last, the bacilli have disappeared from the sputum, and finally expectoration has ceased, while the last case already shows fever bacilli and lessened sputum. These results are certainly favorable to antiphthisin, and if other competent observers agree with me we must conclude that antiphthisin does actually destroy bacilli in living tubercular tissue, and accord it a high place in the therapeutics of phthisis.

The antiphthisin which I have used has been obtained directly from the laboratory of the Winyah Sanitarium, at Asheville, N. C. For the information of those who would like to know more of the preparation of antiphthisin, I add the following abstract furnished me by Dr. Karl Von Ruck:

"For the production of this curative substance the tubercle bacilli are grown in the ordinary way upon liquid culture media, and when fully developed and matured, the entire culture is treated with kresol, or other germicidal substance, without the application of heat, in order to kill the tubercle bacilli (temperatures sufficient to kill the tubercle bacilli, injure and unfavorably modify the curative substance contained in the culture fluid). After the addition of kresol to the entire culture, the latter is thoroughly shaken, and allowed to stand for twenty-four or more hours.

"Next, the tubercle bacilli are separated from the fluid by filtration. The liquid filtration is now mixed with a solution of sodic iodide of bismuth, or with any other double salt of iodide and bismuth in strong acetic acid, which causes the formation of a precipitate. The sodic iodide of bismuth solution is added so long and in such quantity until no further precipitation occurs from the aforesaid liquid filtrate.

"The liquid filtrate is next made weakly alkaline by addition of a solution of ammonium carbonate or other alkali for the precipitation of the

bismuth salts, under application of gentle heat upon a water-bath with a temperature not to exceed 70° C., and again filtered. The liquid filtrate is next concentrated in vacuum at a temperature not to exceed 70° C., and after concentration is treated with alcohol, under the addition of which a fine grayish-yellow flocculent precipitate is formed, which slowly settles down and adheres to the sides and bottom of the vessel. This is finally collected after repeated washings with alcohol, pouring off the liquid and evaporating any remaining liquid and alcohol at temperatures below 70° C. This last precipitate, obtained by the addition of alcohol, is the curative substance; it is freed by the above process from toxalbumins and other poisonous substances.

"For therapeutic purposes this precipitate is dissolved in distilled water, to which ⅛ per cent. orthokresol is added for its preservation, forming a clear, yellowish or straw-colored liquid, and it is then administered either by local application or by subcutaneous or rectal injections."

COCAINE-POISONING, WITH REPORT OF A CASE.

BY CHARLES WILSON INGRAHAM, M.D.,
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DOUBTLESS, at the present time the most frequent source of acute drug-poisoning occurring in the regular practice of medicine and surgery is that following the use of cocaine in legitimate doses or applications. This is due to the increasing, promiscuous use of this drug among the laity for the relief of various affections. Not only is acute cocaine-poisoning of comparatively frequent occurrence, but more danger attaches to poisoning from it than from nearly any other non-corrosive substance.

Though ordinarily possessed of no immediate danger to life, chronic cocaine-poisoning is one of the most unfortunate and pitiable conditions to which human beings are liable. The continuous use of cocaine can scarcely be termed a habit, but rather a moral depravity. In justice to such victims, and in view of our present knowledge of the physiological and later the pathological changes occurring in the body as a result of its habitual use, it is only correct to term such condition *chronic cocaine-poisoning*. The drug produces quite well defined changes in the nervous system, and later in the muscular system. Of recent years many persons have become cocaine *habitués*, or dangerously near that state, from the continued use of some of the so-called "patent catarrh cures." The stealthy, insidious undermining of the nervous system from the regular use of such preparations progresses, until, when the cause is discovered, it is often too late to mend of one's own free will.

A large majority of cases of acute cocaine-poisoning occurring in regular medical practice are due to a peculiar constitutional condition of certain individuals. This condition is generally known as idiosyncrasy. Just what idiosyncrasy is, no one seems to have satisfactorily explained. It is a condition which seems to obtain more frequently and in more alarming proportions from the use of cocaine than from any other drug in common use.

The well-known fact that those who are susceptible to the effects of cocaine are not similarly affected from the administration of other drugs would seem to indicate that cocaine-idiosyncrasy was due to some peculiar *diseased* condition of the individual thus affected. In the healthy individual it is the belief of the author that the use of cocaine in minimum doses or applications, from the hands of regular physicians, is wholly devoid of danger; that when dangerous symptoms from such doses occur, it is an indication that the health of the subject is considerably below the normal standard.

Cocaine is a comparatively recent drug, and physicians, chemists, and microscopists have not solved many important questions relative to its safe administration. The frequently asserted remark that the action of cocaine is not reliable, that it is unsafe and uncertain, is not, strictly speaking, true. It is the individual to whom it is administered who is unsafe and uncertain. He may have a cardiac, kidney, or nervous affection, either organic or functional, which renders the administration of cocaine in his case, even in minute doses, unsafe. When such conditions are known, or even suspected, cocaine, if given at all, must be administered with great precaution.

It is very possible that suppurative diseases may cause systemic poisoning from absorption of toxins, and so degenerate the heart and kidneys by destructive actio nupon the blood-corpuscles as to render the use of cocaine unsafe. In performing minor surgical operations upon parts of the body where means cannot be employed to prevent its systemic absorption—if the affection is of a suppurative nature and of long standing—it is very doubtful if cocaine anesthesia is justifiable, unless full precautions are taken to prevent or counteract any possible untoward effects.

Cocaine administration in medical practice

could be rendered absolutely safe by refusing its use in persons with kidney and heart affections, and the employment of means which will fortify against the possible occurrence of accidents. How can we fortify against such accidents? First: By the administration of drugs that are known to possess physiological antagonism—morphine and atropine. The physician should administer by hypodermic injection a small dose of a combination of morphine and atropine a few minutes before making use of cocaine. Second: The administration of ten gallons of oxygen gas immediately before making use of cocaine, and having an abundant supply of oxygen gas at hand in case of emergency. It is the author's belief that in oxygen gas we have the only true antidote to cocaine-poisoning.

My interest was first aroused as to the probable benefit to be derived from oxygen gas in the treatment of acute cocaine-poisoning on learning of its marked control over opium and morphine poisoning; and the report of the following case will, I believe, fully sustain the reliability of oxygen gas as an antidote for cocaine-poisoning:

Mr. A., while suffering from a severe attack of toothache, applied to the gums a ten per cent. solution of cocaine by means of pledgets of absorbent cotton. As this process was repeated quite frequently during a whole day and until late in the evening, it is probable that not less than ten grains of the drug reached the system from venous absorption. He, however, noted no unpleasant effects, and retired as usual about 10.30 P.M., but could not get to sleep. About one hour later he noted that the heart action was very rapid and forcible. As the condition seemed to increase in severity, he finally aroused his wife, who at once prepared some brandy, to which was added a few drops of digitalis. This failed to give the slightest relief. At midnight the pulse was 140. It had lost its forcible character, and was soft—almost imperceptible. At 12.30 A.M. patient became unconscious and very delirious. Physicians were immediately summoned, who worked over him faithfully throughout the remainder of the night. Alcoholic stimulants, morphine, and atropine were administered hypodermically. Despite the most skilful efforts the patient continued to weaken, and the comatose condition became more and more extreme. Breathing shallow. Lips blue. Extremities cold. Pulse scarcely perceptible. During the forenoon several additional physicians were called in. The hypodermic treatment was kept up but there was not the slightest reaction, and there seemed no chance whatever of the patient's recovery. At 2 P.M. it was the unanimous opinion of the physicians that he could not survive more than two hours. The lungs were fast becoming congested, and dark clots of blood were occasionally raised. At 3 P.M. the use of oxygen gas was suggested, and a large supply was immediately obtained. Fifty gallons per hour were administered during the following two hours. At 5 P.M., to the surprise of all, the patient showed signs of consciousness, and at 6 o'clock was able to recognize those about him. With the return of consciousness there was a rapid improvement in the general condition. Though he was practically out of danger, his condition remained serious for forty-eight hours. So intense was the general prostration that it was fully one month before the patient was able to be about.

Despite the most skilful and persistent treatment from the hands of the most prominent consultants of the vicinity, there is every reason to believe that, but for the timely administration of oxygen gas, the case would have terminated fatally before the day was over. Considering that the patient had been totally unconscious for fully eighteen hours, and that during this time the symptoms had indicated that recovery was quite impossible, the result cannot be regarded other than remarkable.

There is no doubt that could the experience of physicians with the administration of cocaine be arranged systematically, much of vital importance could be brought to light. Definite rules governing its use could be formulated, and cocaine administration reduced to a scientific basis. The deaths from medicinal doses of cocaine, which are now laid to an indefinite susceptibility, would doubtless be found due to well-defined and preventable causes.

The poisonous action of cocaine seems to assert itself in two distinct ways. First: Collapse of the subject within a few minutes of its administration. This doubtless is the most common action. Second: Several hours following its use, as in the case herein mentioned, showing that it has a cumulative tendency.

This case also suggested the line of action mentioned in another part of this article, for the prevention of accidents from the use of cocaine, as well as for the treatment of acute cocaine-poisoning; and it is the belief of the author that by taking special care to detect contra-indications, and to follow out this line of precaution and treatment, the untoward action of cocaine would be of rare occurrence, and recovery from poisoning from it would be the rule.

A TELEGRAM from Dr. Lapthorn Smith announces that the bullet located by the X-ray in the leg of the patient in the Montreal Hospital was found, on operation, at the exact spot indicated, and was successfully removed.

CLINICAL MEMORANDUM.

REPORT OF TWO INTERESTING CASES: ANEURISM OF THE THORACIC AORTA, WITH NECROPSY; ALSO MEDIASTINAL TUMOR, WITH NECROPSY.

BY HERMON C. GORDINIER, A.M., M.D.,
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PROFESSOR OF PHYSIOLOGY AND ANATOMY OF THE NERVOUS SYSTEM, ALBANY MEDICAL COLLEGE.

CASE I.—J. H., aged 48; born in Ireland; occupation, molder. Family history negative, he having no knowledge of his family. Denies syphilis; never has had rheumatism; has been a hard drinker. He is well nourished, stout; height, five feet eight inches. He dates his present trouble back two months, when he contracted a severe cold, accompanied by a violent spasmodic cough, with great dyspnea and the expectoration of large quantities of mucus, but no blood. Three weeks ago he noticed a swelling on right side of neck; a week later observed a marked swelling in right arm, and particularly in hand. His breathing was so disturbed that he was obliged to rest at night in a semi-erect position. For six weeks has suffered with severe, deep-seated pain, beginning in the right shoulder, passing into the infraclavicular region near the sternum and running up the back of the head. Legs never swell; no difficulty in speaking or swallowing; no change in the voice; marked dyspnea on exertion. At times suffers from attacks of violent palpitation; movements of the head bring on severe attacks of dizziness. He is generally cyanosed; has no pain of a boring character.

Physical Examination.—The collar of flesh, so aptly described by Bramwell, well marked. In supraclavicular regions above the middle of the clavicles and extending to their acromial ends, well-marked swellings are observed, which on palpation feel like bunches of veins filling from above. Superficial veins in mammary regions distended, veins of left arm much more distended than those of right. Left arm more edematous. In left lower axillary region a decided sinking inward during inspiration was observed; between fifth and sixth ribs exists a depressed scar, result of abscess from a diseased rib.

Inspection of right mammary and infraclavicular regions over an area the size of one's hand elicited an expansile pulsation, most manifest during suspended respiration. In right infraclavicular and upper mammary regions, between second and fourth ribs, near sternum, is to be felt, on deep pressure, an expansile pulsation. The apex beat is diffused, and covers an area the size of a silver dollar; it is downward and to the left, in sixth intercostal space, an inch outside of mammillary line. During quiet breathing both sides expand equally; breathing short and shallow, respiration thirty-six per minute; on deep inspiration right side seems to move most. Right side is fuller than left; this is particularly true in mammary region near sternum. Despite numerous efforts, tracheal tugging could not be elicited. No bulging in interscapular region. The movements of the vocal cords were normal. Pulse in right radial much less in volume than in left; a decided difference exists in the pulse of the carotids, the right carotid pulse being hardly perceptible, the left full and tense. Percussion.—Dullness over the following territory: beginning an inch to the right of the sternum, at second rib, extending inferiorly to fourth rib, extending nearly to left border of sternum, and on that side as low as the third costal cartilage; longest diameter from right to left, three and a half inches; shortest vertical, nearly three inches. Aortic second sound accentuated over the above area. Faint systolic and diastolic murmurs heard in region of dullness. No episternal murmur; no murmur was heard in the mouth, as is often the case in concealed aneurism. Soft systolic murmur at apex faintly transmitted into axilla. Liver dulness two fingers' breadth below margin of ribs; spleenic dulness normal. No murmur over abdominal aorta; no differences in femoral pulses; no ascites. Respiratory murmur more feeble on right side. Evidence of sympathetic irritation exists; pupils irregular; right pupil dilated; left moderately contracted; right responds sluggishly to light and accommodation, left responsive to both acts. Slight fibrillary twitchings in tongue; reflexes normal; no difficulty in gait. Urine normal; excretion scant.

December 8, 1894.—Patient very cyanotic. Edema of left arm increased; great pain, stabbing in nature under left nipple; dyspnea on the increase; vocal fremitus increased over whole left side posteriorly; dulness in left infrascapular region; crepitant râles, bronchovesicular approaching bronchial; temperature, 100° F.; no expectoration.

December 15, 1894.—Dyspnea great; complete orthopnea; cyanotic to an extreme degree; both arms and legs very edematous. Respiration, 60; pulse, 100, almost imperceptible; collar of flesh more prominent; expansile pulsation more plainly visible.

Patient died December 17, 1894. Autopsy twenty-four hours after death.

Notes.—Rigor mortis well marked. Soft edema of upper extremities more marked on left side; edema of same character in the legs. Neck much swollen. Veins traversing anterior chest wall distended, all superficial veins dilated and full of blood. Muscles soft, flabby and pale, full of serum. Pericardium contained about six ounces of serous fluid. Evidence of old pericardial adhesions on left ventricle and upper part of right. Apex of right lung adherent by tender adhesions, free over rest of surface. Left lung universally adherent, the adhesions being well organized.

Springing from the base of the heart and extending to the right just beyond the junction of the clavicle with the sternum, posteriorly to within one and a half inches of the vertebræ, to the left about half an inch beyond sternal border, and downward as far as the lower border of the fourth costal cartilage, exists a perfectly globular tumor adherent to the sternum and costal cartilages and to the rest of the lungs; the right primary bronchus was found decidedly compressed; the right subclavian artery and the innominate vein were compressed; the right carotid

artery was greatly compressed, leaving but a slight lumen to the vessel. Left subclavian and carotid arteries were dilated and atheromatous. The aneurismal sac was almost a perfect globe, and was filled with laminated fibrin about an inch thick.

Transverse diameter of sac, five inches.

Vertical diameter of sac, six inches.

Antero-posterior diameter, five inches.

The sac arose from the ascending division of the thoracic aorta just above the sinus of Valsalva, the aorta was generally atheromatous, coronary arteries patent, but lumen narrowed from atheroma. Aortic valve thin and papery, aortic opening dilated and incompetent, left ventricle enlarged and cavity dilated, muscle wall firm, mitral valve normal, orifice enlarged. Pulmonary artery filled with an ante-mortem clot. Right ventricle normal as to size, muscle wall soft, pulmonic and tricuspid valves normal. The whole left lung hepatized passing into the third stage. Liver enlarged and apparently fatty. Kidneys undersized, capsules adherent, cortical substance thinned; microscopically they were typically granular.

CASE II.—*Case of scirrhus cancer having its primary seat in the tunica adventitia of the aorta.* This case was first observed and demonstrated to my class in medical diagnosis at the Rensselaer County Hospital, November 20, 1895.

May 20, 1895. Mr. E., age 50 years; occupation, grocer. Two years ago had a severe attack of la grippe; recovered perfectly. No history of malignant disease in family.

Present trouble began about four months ago, when he noticed that his health was failing; that he was becoming emaciated, and that he had no desire for food. Eight weeks ago first noticed a severe pain at midsternum, which usually passed backward between the shoulder blades. In a short time began to experience a difficulty in swallowing, particularly solid food. This distress increased until it was absolutely impossible for him to swallow any solids, and at times liquids would distress him severely. Has noticed a gradual increasing difficulty in breathing. Bowels regular. No epigastric pain.

Physical Examination.—Patient short, stout; fairly well nourished; face emaciated; generally sallow. Acne rosacea slightly masked. Chest symmetrical, no local bulgings, no abnormal pulsation, no edema of chest walls or of upper or lower extremities. Veins of chest prominent, those of right side most distended, fill from above. A swelling exists in the inner supraclavicular region near sterno-clavicular junction, which, on palpation, proved to be a mass of movable lymph glands. Liver palpable an inch below ribs. Edge smooth, but very hard and tender. Slight dulness over whole right side posteriorly; respiratory murmur much less distinct than on left side, seeming to be muffled and distant. Vocal fremitus and resonance diminished on right side. Cardiac dulness normal; heart sounds feeble; no adventitious sounds. Splenic dulness normal. Movement of vocal cords normal. Pulse equal, small, 120. Pupils minutely contracted, respond sluggishly to light and accommodation. Reflexes normal. Two distinct splashing sounds on auscultation of the esophagus. Urine normal in amount, sp. gravity 1020; no casts, sugar, albumin, or blood. Blood: 3,000,000 red, 60,000 leucocytes, mostly neutrophiles. Poikilocytosis well marked.

The symptoms taken collectively in connection with the physical signs lead me to diagnose a mediastinal growth probably malignant, which had compressed the esophagus, producing the dysphagia and the double splash heard on auscultation. The distant, feeble respiratory murmur, the diminution of vocal resonance and fremitus as well as the dyspnea, can be well explained by the compressed bronchus. The minutely contracted pupils, which responded but sluggishly to light, were doubtless due to paralysis of the sympathetic with overaction of the motor oculi nerves. The overdistended and greatly dilated chest veins may be explained by compression of the vena cava superior or the vena azygos. I think in this instance, from the location of the principal growth in the posterior mediastinum, from the absence of any enlargement of the veins of the head or neck, that the vena azygos vein was compressed, interfering largely with the intercostal and possibly mammary veins. The malignant character of the growth was suggested by the rapid development of a cachexia, loss of flesh and strength, the enlarged lymph glands; increase in size of the liver, coupled with its very hard and tender border, and lastly, the marked leucocytosis which existed on several occasions.

June 15, 1895.—Progress steadily downward, emaciating rapidly, dyspnea and dysphagia greatly increased, lips and hands cyanotic, pulse soft, small, and rapid, 140; heart sounds very weak; friction rub over left nipple; slightly jaundiced.

June 19th.—Very cyanotic; pulse 160; respiration 60. Patient drowsy, pupils pin-pointed, tongue dry and brown. Expired at 7 P.M.

Autopsy twelve hours after death. Rigor mortis well marked. Slight icteric tint of skin; chest veins dilated and full of blood, panniculus adiposis well marked. Right lung collapsed, left lung held in place by general adhesions. Liver projected two inches below free border of ribs, infiltrated with small and large areas of cancer. Between right primary bronchus and esophagus posteriorly and aorta anteriorly, to which it was inseparably blended, existed an oblong mass about three and one-half inches long and two inches in breadth, which compressed, in connection with a number of enlarged bronchial glands, the right primary bronchus to one-third its natural size. The esophagus was compressed so that it would just permit the introduction of a lead-pencil. Stomach undersized, otherwise normal. Pancreas, spleen, and kidneys normal. No retroperitoneal glands enlarged. Microscopic examination of sections from main mass shows it to be a scirrhus growth, starting, I think, from the tunica adventitia of the aorta, with secondary deposits of a like character in the liver, lungs, and lymph glands.

OBSTRUCTION OF BOWEL BY A LARGE GALL-STONE.

BY THEO. G. DAVIS, M.D.,
OF BRIDGETON, N. J.

MRS. P., aged 62; a well-nourished, active, hardworking woman, has had during the past three years, several attacks of vertigo, which have been attributed to the effect of a somewhat dilated, irregular heart, or overwork.

During the present year she has had frequent attacks of diarrhea, with so-called bilious symptoms, not severe enough to cause her to consult a physician until September 12, 1895, when, after overworking on a very hot day, she had an attack of vomiting and purging, followed by such prostration that she returned to her home and I was called. I found her with a temperature of 101½° F., complaining of great muscular soreness, especially in limbs and abdomen, with slight retraction of head, somewhat dilated pupils and staring eyes, and a condition of mental apathy, in which answer to all questions was: "I don't know."

Thinking, from the history obtainable, I had a case of spinal meningitis, with involvement of base of brain or perhaps a beginning of rheumatism, I gave aconite, phenacetin, and sodium salicylate. The fever and soreness subsided, and in a few days were gone, but the peculiar mental condition lasted fully two weeks, gradually improved, the patient convalesced, and was about the house as usual.

Owing to trouble and worry she became much depressed, and, five weeks after attack just described, again began to vomit, without purging; a similar mental condition developed; there was no fever; the heart was slower and more regular than usual; she was very restless and had slight soreness and abdominal distress, but no pain even on deep palpation—the soreness was greatest in the region of gall-bladder and head of cecum; at no time was there jaundice, and no itching of skin except when morphine was given to quiet restlessness.

The vomiting, which was at no time stercoraceous, continued for eleven days, during which time there was *absolute constipation*; on the twelfth and thirteenth days there were loose movements; on the fourteenth a great desire for stool, which was ineffectual.

Examining the rectum I found a hard, movable body, which, when removed by stretching the sphincter, proved to be an ovoid cylindrical gall-stone, measuring in its least circumference 3⅞ inches, and in its greatest circumference 4¼ inches, and weighing 265 grains.

The patient made a gradual recovery.

Reviewing the case, I think at the first attack the gall-bladder ulcerated and the stone passed into the duodenum, slowly making its way through the small intestines; until reaching the ileo-cecal valve it caused complete obstruction, lasting eleven days, and during the next two days reached the anus.

The mental symptoms were doubtless caused by auto-intoxication.

REPORT OF A CASE OF PERFORATIVE PERITONITIS FROM A FOREIGN BODY IN COLON ASCENDENS.

BY K. HOEGH, M.D.,
OF MINNEAPOLIS, MINN.

E. S., male, age 43; brakeman on a freight train; had always enjoyed good health and been of good habits, when he, about the middle of December, 1895, began to make occasional complaints of griping pain in abdomen; he continued to work, and took no medicine. December 27th or 28th the pains were worse, so that instead of going out on his train he remained at home, and did not resume work before the 11th of January, 1896. While at home he did not go to bed or consult a physician, but took various saline cathartics, without, however, getting what he considered an adequate response from them. He worked on his train to 17th of January, when he was taken severely ill with abominal pain. He consulted a physician at the place where his train was at that time, upward of two hundreds miles from home. He came home the next morning in some pain, unable to work; went to bed, where I found him about noon the 18th. He was suffering from quite severe colicky pains; had had some very small passages after enemata, without relief of the pain. Since the previous day he had vomited whatever he took into his stomach, first food, and afterward water, which he occasionally had kept down for half an hour. It had a greenish color, and was mixed with some grumous, blackish shreds; its exact character could not be determined; it had no fecal odor. In the intervals of pain he had a placid expression, but at times his features and bearing would indicate great suffering. He would get out of bed, bend over, and groan. Abdomen was slightly distended; in no region was there any considerable tenderness upon moderate pressure; but deep pressure was disagreeable to him everywhere, most so above the navel, and behind in the right lumbar region; no tenderness over the seat of the appendix; none in the region of the gall-bladder; none over the stomach. Tongue moist and clean, temperature 99, pulse 60, respiration 22. Treatment consisted in a warm, moist application to abdomen, and enemata of asafetida with opium. He passed a bad day, and a worse night, the colicky pains continuing; vomiting however became less frequent. The 19th the temperature was 99.2, pulse 52, respiration 20, abdomen distended a little, tenderness the same as previous day, viz., some in right lumbar region, and some around the navel, more marked on right side. Tongue remains moist and clean, and his general aspect good, between the cramps; morphine administered hypodermically. On the 20th the condition was very much the same; his urine was found clear, acid, sp. gr. 1022, free from albumin and sugar, and no indican; temperature 98.3, pulse 56, respiration 21; tongue moist and clean. He had had no passage by the bowels, but vomiting had ceased. During this day, however, a sudden change for the worse took place. Dr. A. Barnes saw him in the evening, found abdomen quite tympanitic and tender; he was able to demonstrate the presence of free fluid in the abdominal cavity; tenderness well marked, most so around the navel;

liver and spleen dulness abolished. The bowels had not moved, and vomiting of a grumous fluid had taken place twice during the day—temperature 101, pulse 70. On the 21st he was found in very much the same condition as the previous night; his dyspnœa was more marked; there had been no movement of the bowels, but vomiting had ceased. His tongue, which had become dry the previous day, remained so—his features indicated collapse;—temperature 101, pulse 100. A 3 o'clock in the afternoon a consultation was called, and Drs. David Thomas and A. Barnes saw him with me. An examination of rectum proved only that the intestine was empty. He was now so weak, with a pulse of 124 and dry tongue, that a laparotomy was considered unjustifiable. While the presence of general peritonitis seemed evident, it was impossible for us to reach any conclusion as to its cause; it could not well be from any inflammation of the appendix, for the local tenderness at the characteristic point was absent; nor does appendicitis usually run a course beginning with afebrile colic with free intervals. Hepatic colic was also ruled out as a probable explanation; nor could it be a gastric ulcer, although such ulcers may run a latent course and reveal themselves by a sudden perforation. A suspicion was entertained that the case was one of acute pancreatitis, although this disease is not usually afebrile. It had been this very uncertainty in the diagnosis, which had prevented an early laparotomy, when it might have seemed advisable. About midnight the 21st he became delirious, and died at 4 A.M. the 22d. A necropsy was held the next afternoon by Dr. Palmer Findley, in the presence of Dr. A. Barnes and myself. Only the abdominal cavity was opened, as the family had reluctantly given their consent to the necropsy. The bowels protruded very much, being distended by gas; they were of a glistening, pale appearance, not injected, not covered by lymph or pus; some fluid was seen in the flanks, a strong fecal odor was observed, the cause of which was immediately apparent by the escape of gas in bubbles, mixed with minute particles of feces, which came out through three very small, hardly visible openings in the colon ascendens at a place where it was loosely agglutinated by recent adhesions to a coil of the small intestine, about three and one-half inches from the ileocæcal valve. In one of these holes there was sticking out for about one-third of an inch the sharp point of a Japanese toothpick, which was extracted and found to be bent by a "greenstick" fracture, so that the thick end formed a very acute angle with the pointed end. It seemed, also, that this end had engaged in one of the minute openings, lying close to the one through which the pointed end projected. Upon trying to separate the adhesions a large hole was accidentally torn in the adjacent part of the colon ascendens, and feces ran out, contaminating the fluid in the iliac fossa which had seemed to be clear. The cecum was lifted out; it was very much distended by thick pultaceous masses of feces, in which undigested (or partly digested) grains and some coarse, finely minced fibers (cabbage?) were discovered. The appendix was healthy; the inner wall of cæcum was somewhat congested, its outside wall apparently healthy up to near the place in the colon where the perforation had taken place, where there was a small area of deep purple ecchymosis. The ascending colon showed only the aforesaid small holes, now united into one. The remainder of the intestinal canal appeared perfectly normal, pale, and with whole and healthy mucous membrane. The appearance of the stomach, liver, gall-bladder, pancreas and mesentery was normal.

Taking the history of the case and the post-mortem appearances together, it seems fair to attribute the perforation of the bowel to the toothpick. The griping pains, five weeks before death, may have been produced by the point of toothpick engaging in the mucosa; injudicious purging producing violent peristalsis pressed the toothpick further in; probably a minute suppurative focus was established, surrounded by adhesion to a neighboring coil; the violent muscular efforts incident to his occupation tore the adhesions, and a localized peritonitis took place around it of an agglutinative character; but this was overtaken by a destructive necrotic process, which finally brought about perforation into the general peritoneal cavity. There were several ways of interpreting the mild previous peretonitis, and I did not feel justified in undertaking an operation which, if it had not revealed a removable cause, might have been severely criticized. It is a precarious matter to perform a laparotomy when it is not possible to make even a probable diagnosis.

MEDICAL PROGRESS.

Rupture of the Uterus, with Recovery.—QUEISNER (*Centralbl. für Gynäkologie*, 1895, No. 51, p. 1341) has reported the case of a woman, 38 years old, who in the course of her ninth labor experienced a sense of something having torn in the abdomen. The pains, which previously had been active, suddenly ceased, and the woman lost consciousness and presented the appearance of collapse. External examination showed the breech to be above and the head at the superior strait; the small parts could not be detected. On introducing the hand into the dilated os a uterine laceration, between four and five inches long, could be felt at the right side of the fundus, in which rested the right lower extremity of the fetus, which projected into the peritoneal cavity through a tear two inches in extent. The umbilical cord was pulseless. The right foot was carefully drawn into the uterus, and version readily effected. The placenta was seated upon the anterior uterine wall, and was removed by the hand. After the removal of the fetus the uterus contracted well upon the left side, the right half remaining relaxed and boggy. The pulse was improved by injections of ether. The hemorrhage was slight and tamponade was unnecessary. A five-pound sand-bag was placed over the uterus, a bandage applied, and opium administered. The woman was out of bed on the fourteenth day. After the lapse of four months the uterus was anteverted and displaced to the right. Upon the right side a firm, sensitive cicatrix could be felt. Five months later the cicatrix could still be appreciated, but the sensitiveness was less. The only predisposing influence to which the rupture of the uterus

could be related was the lifting of a heavy weight, as there appeared to be no disproportion between the uterus, the fetus, and the uterine contractions.

Acromegaly Complicated by Posterior Sclerosis.—At a meeting of the Medical Society of Hamburg, NONNE (*Deutsche medicin. Wochenschr.*, 1895, No. 4, Suppl. No. 3, p. 14) reported the case of a woman, 41 years old, without hereditary predisposition, in whom there had been present for three years, following labor, symptoms of acromegaly. The thyroid gland was not appreciable, and there was no dulness on percussion over the sternum. The visual fields were normal for white, but contracted for colors, upon the right in greater degree than upon the left. Visual acuity was lessened, in consequence of beginning optic atrophy. The pupils were contracted and reacted imperfectly to light-stimulus and in accommodation. The knee-jerks were wanting, and lancinating pains were present in both lower extremities. There was no ataxia, no impairment of sensibility, no paresis, no derangement of the function of the sphincters, and no tenderness on pressure on nerves or muscles.

The Nervous Complications of Erysipelas.—CROCHET (*Thèse de Paris*, 1895; *Rev. des Sc. méd.*, 1896, No. 93, p. 161), in a collection of 597 cases of erysipelas, found nervous complications in 53. Among these were syncope at the onset; delirium (independently of involvement of the scalp), meningitis, enfeeblement of the sphincters, choreiform movements at the height of the disease; and during convalescence vertigo, visual disturbances, amaurosis, paralysis of the oculo-motor nerve, paralysis of the extremities, pseudotabes, symmetrical gangrene of the extremities sensory, disturbances, auditory disturbances, and neuralgia. In those predisposed it was found that erysipelas may excite neuroses such as hysteria, and exceptionally psychoses such as general paralysis. These complications are to be attributed to the action of the toxin of erysipelas upon the nervous structures, as demonstrated experimentally. The possibility of secondary infection must, however, not be ignored, as pneumococci, alone or associated with streptococci, have been found in the exudate present in a case of meningitis, complicating erysipelas. The various nervous complications noted usually terminate in recovery.

Ascending Degeneration of the Pyramidal Tracts in a Case of Transverse Syphilitic Myelitis.—DEJÉRINE and SOTTAS (*Archives de Physiologie*, 1896, No. 1, p. 128) have reported the case of a man, 67 years old, who at the age of 30 years had a chancre followed by manifestations of secondary syphilis. Four years later he suffered from transient weakness of the legs, and a year after this from sudden transitory paraplegia predominating in the right leg, with retention of urine. This condition grew progressively worse for two years, and then remained stationary. At the age of 62 the man presented spastic paralysis, the more pronounced upon the right, with unimpaired sensibility, with enfeebled sphincters, and with muscular atrophy of the right side of the body. Three years later there was an aggravation of the condition, with wasting of the legs, impairment of sensibility, and incontinence of the sphincters. Cystitis and bedsores developed and led to a fatal issue. Upon post-mortem examination, brain, spinal canal, and soft membranes were found intact. In the mid-dorsal region of the cord, however, there existed the remains of a transverse inflammatory lesion, microscopically presenting the appearances of a syphilitic meningo-vasculitis. There had evidently been disseminated softening followed by sclerosis of the nervous structure of the cord, particularly in a segment included between the fifth and the ninth dorsal roots. Ascending degeneration of the postero-median columns and of the direct cerebellar tract had taken place and descending degeneration of the pyramidal tracts; but, strangest of all was an ascending degeneration of the anterior and later pyramidal tracts.

THERAPEUTIC NOTES.

Thyroidtherapy as Applied to Psychoses Associated with Goitre.—REINHOLD (*Münchener medicin. Wochenschrift*, 1895, No. 52, p. 1205) reports a series of interesting observations showing that the administration of fresh thyroid gland or dry extracts of the gland to individuals suffering with psychoses in association with parenchymatous goiter, while followed by pronounced diminution in the size of the enlarged gland, is unattended with any influence upon the mental state. On the other hand, the medication also occasioned no unpleasant effects.

The Prophylaxis of Acute Articular Rheumatism.—On the hypothesis that acute articular rheumatism often arises by infection through the pharynx STEKEL recommends the employment of a gargle containing citric acid in all cases of pharyngitis and tonsillitis of rheumatic type.

Take of

Citric acid	2½ drams
Water	3 fluid ounces
Saccharin	6 grains.—Mix.

Dose: Add a tablespoonful to a glass of water, and use frequently as a gargle, swallowing a mouthful.

For infants, less than a year old, the following formula is recommended:

Take of

Citric acid	15 grains.
Water	2 fluid ounces.
Syrup of Lemon	1 fluid ounce.—Mix.

Dose: A teaspoonful every half-hour.

—*Médicine moderne.*

For Uterine Leucorrhea.—

Take of

Tannic acid	2 ounces.
Pure alcohol	1 fluid ounce.
Beechwood creosote	1 fluid ounce.
Distilled water	8 fluid ounces.—Mix.

Dose: A tablespoonful in a quart of warm water, to be used as a vaginal injection, three or four times a day.

—LIROLA, *Semaine médicale.*

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SATURDAY, FEBRUARY 22, 1896.

POSSIBILITIES OF THE ROENTGEN RAY IN MEDICINE.

Now that the early excitement created by Röntgen's announcement of his discovery has partially subsided, the reflecting men of the scientific world, as well as the profession, are beginning to eliminate the visionary speculations that at first suggested themselves, and determine the definite directions in which the X ray can be of practical value. We have now sufficient information as to its real nature and present limitations to enable us to form a fairly reasonable and definite estimate of what we may hope from it in our own particular field.

Let us consider, then, in the first place, what we have discovered that it will not do. The wild fancy that this power was a peculiarly penetrating form of "vision"—a sort of photographic second sight or "materialized eye"—which could be caused to calmly penetrate to just such depths of the human tissues as the operator desired, and reproduce a complete picture of everything it found at that particular level, is far from the truth. The well-known statement of the charlatan to his gaping patient, "I've been looking at your kidneys, sir, for the last ten minutes, and they are badly shrivelled, sir, badly shrivelled!" is not to be literally realized. Unfortunately for our antivivisection friends, it must be admitted also that the early hope inspired by this power that we should thus be enabled to watch the various functions of the internal organs of the body, and so render vivisection unnecessary, is fast fading into the baseless fabric of a dream.

The futility of such speculation becomes promptly apparent when we recall the fact that this new picture is not a photograph at all, but simply a shadow or silhouette, so that no details whatever, except as they depend upon density and thickness, can be reproduced. Indeed, the term photograph is doubly inappropriate, since it is not light rays at all that are concerned in the process, but, as we pointed out in our last issue, certain totally invisible vibrations given off in electric incandescence. These, from their being as yet a literally "unknown quantity," have been (according to the painfully familiar formula of our schoolboy days) termed by Röntgen the X ray, and Schubert, of Hamburg, actually proposes the term "xograph" for their product and "xing" for the process.

It will be remembered that Prof. Goodspeed in our last issue suggested *radiograph*[1] and *radiography* as appropriate terms, and Dr. Cattell coined the words *skiagraph* and *skotograph*.

As far as our present knowledge goes the positive advantages to medicine seem to be limited to three conditions: fractures, dislocations and tumors of bones, encysted bullets, needles or pieces of glass in the tissues, and earthy calculi. In the first class of conditions its advantages would appear to be slight unless great advances upon present powers and methods can be made. The *tactus eruditus* is certainly a delicate and reliable sense in investigating fractures and dislocations, and it is questionable how much help can be obtained by such crude and blurred shadow pictures as can at present be obtained. In recent cases of fracture or dislocation, the delay and discomfort to the patient necessarily involved in the

[1] Dr. A. Rose writes that *radiograph* is ahybrid word, *radius* being Latin and *graphe* Greek, and hence is an unfortunate suggestion.

application of the method would be practically an insuperable objection to its use for purposes of diagnosis. This objection, however, has been met by the instrument[1] for visual use, invented by Prof. Magie, of Princeton.

As a means of ascertaining that the parts had been placed in proper position after adjustment, it would, however, be most valuable, for of course all splints and dressings, except plaster or metallic splints, would be as "translucent" as the soft tissues themselves. Its principal value, however, would be in obscure cases with much swelling, "green-stick" fractures for instance, in partial luxations, and in medico-legal cases when the proper setting of a fracture or reduction of a dislocation was in question.

In the locating of bullets, some brilliant results have been already recorded, in which the bullet, beyond the reach of touch or probe, has been found by the X ray and successfully removed. It might not be out of place here to call attention to the fact to which Prof. Bergmann, of Berlin, has alluded, that a bullet successfully encysted in the tissues becomes a harmless body, and the danger now arises that every one who has been carrying bullets, needles, and shot for years, without harm to himself, will be possessed with the passion to have them located and dug out. Against this, Prof. Bergmann protests as being dangerous and unnecessary. It must be remembered that as a rule it is the tract through which the bullet has plowed that is the source of danger, and not the missile itself.

In locating renal and urinary calculi, the Röntgen method will be of great value, although of course only as an aid to the sound in the more obscure cases. And Nüsser, of Vienna, has already used it with success in demonstrating the presence of a stone in the pelvis of the kidney. It is not yet known whether gall-stones are sufficiently opaque to be detected by its rays.

So far as present developments have gone, Hamlet's ardent aspiration, "Oh that this too, too solid flesh would melt," has been so completely fulfilled that not a trace of any of the soft tissues of the body remains, except a light haze, even the articular cartilages being so completely penetrated that the bones appear entirely separated from each other at the joints.

One interesting and important field of investigation remains to be considered; and that is the effect of the X ray upon germ life. It is a well-known fact that sunlight possesses a decidedly germicidal effect, and that if the prismatic rays be passed through a culture-tube containing a fluid medium, the various bacilli therein will exhibit a selective action. And it has occurred to more than one worker along the lines of bacteriological investigation that it was quite within the realm of possibility that the Röntgen ray would be found capable of killing bacteria within the human system.

During the past week, in order to test the influence of the Röntgen rays upon germ life, pure cultures of diphtheria bacilli were obtained from Dr. W. H. Park, of the Bacteriological Laboratory of the New York Board of Health, and subjected to the direct effect of the rays from a Crookes tube for thirty minutes. Cultures were made both before and after the exposure which were personally developed in the laboratory by Dr. Park, who reports that no effect whatever was discovered to have resulted from the exposure. It is therefore only possible to announce one experiment, with negative result, while the investigation is being further pursued along the same and parallel lines.

[1] This is described in the MEDICAL NEWS of February 15th.

THE MEDICAL CORPS OF THE NAVY.

THE report of the surgeon-general of the navy for 1895 called attention to some very important, even startling, facts, in which not only the well-being of the corps is concerned, but the entire profession of the country as well. It appears that the corps, when full, numbers 170 men; that a medical examining board is constantly in session, but that for a number of years sufficient material has not appeared to fill the list, and, moreover, that of the nineteen who came for examination the past year to fill the large number of vacancies, only four were found competent, though the examination is one in which a man of ordinary capacity has no good excuse for failure.

It will be remembered that our navy has many new and splendid ships; that these are often in foreign ports, where many opportunities for cul-

ture and improvement must offer; also that shore duty is usually in or contiguous to great cities, with all the advantages which accompany such residence. Why is it, then, that the medical corps of the navy is so unpopular and so little in favor with the profession that it alone, of all the branches of the public service, is unable, year after year, to obtain its full complement of men?

The first objection which appears is an insuperable one, because it affects the dignity and self-respect of every man who offers himself to the service. It seems to be based upon the feeling among officers in other branches of the navy that the profession of medicine is inferior to the profession of arms; otherwise, why is it that the medical officer who begins his service, who also, by the way, must begin in a grade lower than in the medical service of the army, is at once placed on a lower social plane and with conditions inferior to those of his fellow officers—that is, he cannot mess with others of his profession on board ship—he must sleep on a bunk in the steerage, and for three years he must lead the steerage life. We can hardly imagine anything more depressing or humiliating to a young man of spirit and ability than such treatment, and we wonder that any one can be found who will accept service under such requirements. It is the melancholy fact that the United States is the only country having a navy of any importance in which the medical service is subjected to such indignities.

The law as to the retirement of medical officers in the navy seems most inequitable. The army medical officer can retire after thirty years of service, the naval medical officer only after forty; and, as the circumstances of his education, which, be it observed, is always obtained at his own expense, in distinction from the line officer, who is educated by the government, as these circumstances compel him to enter the service at least five, and perhaps ten, years later than the line officer, the latter is given a distinct advantage. In the English navy, medical officers may retire after twenty years of service. The titles, which, in the public service, always seem to excite more consideration than common sense would dictate for such conditions, are also to the disadvantage of the medical corps. It is possible that this will be remedied, if the bill for reorganizing the medical corps of the navy, now before Congress, shall be passed. The titles proposed under the new arrangement are: medical director and medical inspector (the same as at present), staff surgeon, surgeon, and surgeon of the junior grade. The regulations concerning medical officers are also inequitable with reference to rank. For example, a surgeon has the relative rank of a lieutenant or a lieutenant-commander. Furthermore, the rank of the medical officer, at least in the lower grades, is made to depend upon the conditions affecting the rank of members of the same grade in the line, a medical officer having what is known as his running-mate in the line, and his rank not increasing until that of his running-mate has increased.

If we have a correct understanding of this regulation, it becomes a matter of astonishment that such a stupid and unjust custom has been allowed to come into being—still more to persist. An officer is refused promotion, not because he has not served long enough or faithfully enough, but because promotion has not come to a co-ordinate officer in another branch of the service. We are amazed that a sense of justice should allow such partial and unfair regulations.

As a further evidence of the estimation in which the medical corps is held, it is proposed to degrade the rank of the surgeon-general from commodore, in case that grade is abolished, to post-captain, while the commodores in all other branches of the service are to be promoted to rear-admirals.

The foregoing statements are authentic. It is surprising, in view of such facts, that there is any medical corps at all, that men can be found, sufficiently capable to retain position, with such disagreeable comparisons and such odious customs constantly to be submitted to.

The medical profession asks no odds of the profession of arms, or of any other, in point of dignity, learning, and usefulness. Whatever it may have been in the past, there is now no difference of opinion on this point among those whose opinion is really valuable. If it is the policy of the naval authorities, not only to withhold adequate inducements to men of ability to enter the medical corps, but to snub and humiliate those whom they do receive, they need not be surprised

if the quality obtained corresponds to the conditions, nor that in some grave emergency, when, like pistols in Texas, the services of accomplished men are sorely needed, the question of accountability will come back upon them to plague them.

It is apparent that, however efficient our new ships may be as fighting machines, they are greatly lacking in such matters as pertain to the health and comfort of those who work them. Think of working in a fire-room for hours at a temperature of 130° F. or more. The sick-bay, on the other hand, may have a temperature considerably under 70°, and be dark and stuffy, and entirely unsuited to the wants of the sick. The difficulties of getting the wounded from the decks into the sick-bay in time of action, and hundreds of other questions in our modern navy, have to be decided by the members of the medical corps.

We know that Jack ashore, as well as Jack at sea, has a wholesome contempt of drugs. Fortunately, he doesn't usually require many, irregular though his life may be, and perhaps it is his dislike for medicine in general which has been the foundation for the ill treatment of the medical corps. The sailorman, high and low, however, should understand that there are many conditions in addition to that of dispenser of medicines, for which it is essential that a skilled doctor should be on board ship and in a naval hospital. That being the case, it should be our aim and pride to attract only the best and most efficient men who can be found—men who will compare favorably with the best in every other branch of the service.

With all the inducements that are possible, it may still prove to be true that those who are most to be desired will not enter the naval service.

Under any circumstances, the opportunities for distinction as physicians or surgeons can never be very great. They can never be as great as in the army. As sanitarians and hygienists, the naval medical corps has many interesting problems to work out in hospital and on board ship. In that direction they should bend their efforts to gain honorable distinction. Such questions as the hygiene of navy yards, the high development of naval hospitals, the preparation of litters and other appliances for removing those who are wounded in action, the ventilation of ships, the sick-bay and operating-room on board ship, the ambulance ship as tender to a fleet, etc., are all questions which are more or less unsolved, and are worthy of the best thought.

But the first step toward having an efficient medical corps is to make the conditions and surroundings such that no self-respecting man need hesitate to accept them.

BACTERIOLOGY.

COMMMENTS ON SOME OF THE OBJECTIONS OFFERED TO THE USE OF ANTITOXIN IN THE TREATMENT OF DIPHTHERIA.

THE failure of tuberculin to realize the beneficial results hoped for has frequently been advanced as an argument against the use of diphtheria antitoxin. Except in so far that the tuberculin excitement showed that too many physicians were fallible and too prone to adopt a treatment before it had been carefully tested, the failure of tuberculin as a therapeutic agent has no bearing on the value of diphtheria antitoxin. Tuberculin is properly compared with diphtheria toxin, or poison, they both being the products of the growth of specific bacteria in nutrient media.

Diphtheria is a self-limited disease, because, in part at least, the reaction of the tissues to the toxin produces an antitoxin. Tuberculosis as a rule, is not self-limited, and up to the present time we have not obtained a substance which is antitoxic to the products of the tubercle bacillus. In all animals we find the poisonous effects of the toxin produced by the bacillus of human diphtheria to be entirely neutralized by sufficient amounts of antitoxin, if it is given before the animals are profoundly affected constitutionally. Tuberculous animals, on the other hand, are killed by injections of sufficient quantities of tuberculin.

Animal experiments gave us, therefore, firm grounds for hoping that the serum would be antitoxic for the same poison in men that it was in animals. Whether in actual experience we would meet with diphtheria early enough to get these beneficial effects, only experience in actual cases of human diphtheria, not animal experiments,

could determine. Now, after three years of ever-increasing use, the men who have had the largest experience, are almost universally of the opinion that diphtheria antitoxin has marked curative power in diphtheria, and that many who are now alive would have died without its use.

A misconception concerning the effects of the use of bacterial cultures in swelling the number of cases called diphtheria, and indeed of the meaning of the results obtained from cultures, seems surprisingly prevalent.

The detection of the diphtheria bacilli in a culture from the throat proves that the throat from which it was made is infected and is a possible source of contagion. If no disease is present, it would be ridiculous to assert that the patient had diphtheria. If, on the other hand, exudate is present, the probability that that exudate is caused by the diphtheria bacilli becomes so strong as to amount almost to a certainty. As a matter of fact, in New York at least, the majority of suspected cases are proved by cultures not to be diphtheria. I believe, however, that the added interest in diphtheria at the present time causes a somewhat greater proportion of mild cases to be reported than formerly, and that for this reason percentage statistics may appear in cities to show a somewhat greater apparent reduction in the percentage mortality than is correct. There is, however, in addition to this, a marked reduction in the actual number of deaths in those cities where antitoxin is extensively used.

The results reported from the Willard Parker Hospital by different men have had a very confusing effect upon the profession, and very frequent inquiries have been made concerning them. The hospital records show the following numbers of deaths and recoveries during January of the last three years:

	Recovered.	Died.	Mortality.
January, '94, no antitoxin.	32	21	39.6 per cent.
January, '95, very weak antitoxin; temperature in wards 80–85°. .	36	15	29.4 per cent.
January, '96, very strong antitoxin; temperature in wards, except for four days, 70–75°. . .	54	13[1]	19.4 per cent.

[1]Four of these deaths occurred in persons not receiving antitoxin; two because they refused it, and two because they were moribund on admission, one dying in ten minutes.

The large number of cases of laryngeal diphtheria admitted during 1895, who after the removal of the tube appeared for the time to be doing well, only later to develop a subacute broncho-pneumonia, was indeed most discouraging.

It is true that a larger proportion of cases finally got well than in the previous year, and that the very prolongation of life in those finally dying of pneumonia showed some new and powerful influence was at work. To the children, however, it was the same whether death came early or late.

The cause of this broncho-pneumonia was carefully searched for by the physicians connected with the hospital.

It was found that the wards were somewhat crowded, and also that for certain theoretical reasons the temperature was kept in the acute wards at from 80° to 85° F. The crowding was lessened, and with the year 1896 the temperature was lowered to 70°. Since then no broncho-pneumonia has developed in any case which was not present on admission, and the results have been most favorable.

During the twenty-six days of January when the temperature was kept at 70°, nine cases were admitted requiring intubation. One of these cases, an adult, admitted on the second day of her disease, refused to take antitoxin—she died. Of the other eight cases six recovered. One of the two fatal cases, who received antitoxin, died in sixteen hours, and the other later after the development of a complicating measles. This certainly is a favorable showing, for not counting the death of the case admitted upon the second day where antitoxin was refused, there were six recoveries in eight cases. The cases admitted up to the present time continue to do remarkably well.

Only two persons who had diphtheria of any severity refused antitoxin. They both died. One of these admitted on the second day of the disease with laryngeal diphtheria was intubated the day after admission, and died the following day of heart-failure. The case was very severe from the outset. The other, a child of 13 years, admitted on the third day with well-marked pharyngeal diphtheria, died five days later of

heart-failure. I have not seen such a case die under the antitoxin treatment.

The results of the use of antitoxin in Chicago, a report of which is published in this number, show the favorable results obtained there with antitoxin, prepared in the same laboratory that furnishes that used in the Willard Parker Hospital.

At the recent dinner of the Boston City Hospital Club Dr. J. H. McCollom gave an account of the results obtained with antitoxin in the department of that hospital for contagious diseases which are also most favorable. He said in part:

"Since the department was opened on August 31, 1895, there has been 844 cases of diphtheria admitted, with 96 deaths, giving a mortality of 11 per cent.

"All of these cases have been treated with antitoxin, and the result is certainly remarkable.

"If we compare this death-rate from diphtheria of 11 per cent. since the introduction of antitoxin, with that of a death-rate in the hospital of 40 per cent. before the introduction of antitoxin, there can be but one opinion regarding the efficacy of the remedy. The effect of antitoxin in the operative cases has been very marked. In the report of the Boston City Hospital for the year ending January 31, 1895, before antitoxin was generally used, there were eighty-six cases of intubation, with seventy-four deaths, giving a mortality of 86 per cent. In the south department from August 30, 1895, to February 1, 1896, there seventy-nine intubations, with thirty-six deaths, giving a percentage of 45, a diminution of nearly one-half.

"The change in the appearance of diphtheria wards, since the introduction of the use of antitoxin, has been very marked. In making a visit one cannot help being struck with the bright and cheerful appearance of the children."

The latest results when grouped together seem to me to clearly indicate: that with serum strong in antitoxin, and with increased experience, we may hope to save very many lives by the early use of antitoxin. Until we can entirely eliminate the horse serum we will indeed have occasional disagreeable after-effects, but these will be rarely, if ever, of a dangerous nature.

WILLIAM HALLOCK PARK, M.D.

ECHOES AND NEWS.

THE Röntgen ray has found rather an unexpected application in archeology. It turns its attention to the mysteries of the past as well as the present. For instance, Harold Fredricks, in the New York *Times* of Sunday, February 16th, announces that the Vienna Museum for some time has possessed as its chief treasure an Egyptian mummy, which is swathed to resemble a human being, but the inscription on which suggested it to be an ibis instead. The thing was too rare and precious to run the risk of unwinding its bandages to solve this problem, but the shadow photograph now plainly reveals the skeleton of a large bird.

MR. FREDERICK M. SHEPARD, of East Orange, N. J., has given $10,000 to the Orange Memorial Hospital, for the construction of a pavilion for consumptives.

IT is noticeable that on the Board of Managers of the Manhattan State Hospital for the Insane recently appointed by Governor Morton, are two women, Eleanor Kinnicutt and Alice Pine.

WILLIAM CÆSAR, a negro who had been convicted of murder, and was awaiting in Sing Sing, N. Y., the execution of his sentence, died in prison from edema of the lungs and glottis. Necropsy revealed evidences of former meningitis in a number of places with adhesions to the brain.

RECENT advices from Wisconsin report a fresh outbreak of smallpox. Three cases have developed in an industrial school for boys at Waukesha, which contains between three and four hundred inmates.

STEPS are being taken to organize an association of Western eye, ear, and throat specialists. A preliminary meeting has been announced for April 7, 1896, to convene at the Midland hotel, Kansas City, Mo.

PHILADELPHIA is soon to have a large office building devoted exclusively to the use of physicians, to be known as "The Clinic." Cincinnati and New Orleans have such buildings in successful operation, and New York is also contemplating a similar project.

BELLEVUE HOSPITAL MEDICAL COLLEGE and the Medical Department of the University of the City of New York will extend their medical course to four years. The change goes into effect at the beginning of the next session.

AN epidemic of jaundice is prevailing in Albany, N. Y. This city has been repeatedly visited by epidemics, but in this instance no local cause has been discovered to account for the malady.

THE death is announced of Dr. Richard M. Hodges, of Boston, late surgeon to the Massachusetts General Hospital and adjutant professor of surgery in Harvard University, where he was also associated with Dr. Oliver Wendell Holmes.

THE medical profession of Cincinnati has suffered a great loss in the death of Dr. C. G. Comegys, which oc-

curred on the 10th instant. Dr. Comegys was an old and honored citizen, and during a long career had occupied many positions of trust with unvarying fidelity.

AS was suggested in our last issue, a movement is on foot looking to the early presentation at Albany of a bill prepared for the purpose of restricting vivisection in public schools. While the avowed object is harmless when thus limited, modifications may readily be introduced during passage, and it is evident that the measure deserves close watching.

A surgical amphitheatre in connection with Charity Hospital in New Orleans has been recently completed and appropriately named in honor of the late Prof. Miles of that city.

THE last number of the *Boston Medical and Surgical Journal* notices an attempt by legislation to enforce the use of secret remedies upon the State hospitals. Such a step would certainly establish a precedent of the most dangerous type.

THE reports in January from St. Petersburg showed no evidence of abatement in the epidemic of typhus fever. Seventeen hundred cases already have been recorded.

THE *Journal of the American Medical Association* in its issue of the 15th presents illustrations and description of a new bone-cutting forceps, invented by Dr. Allen Devilbiss, of Toledo, Ohio. Its usefulness in cranial surgery is particularly apparent, and the ingenuity and simplicity of the instrument appeal strongly to the surgical mind.

THE membership of the British Medical Association has been increased recently by the admission of 227 new members.

A disastrous fire occurred in the laboratories of the Royal College of Physicians of Edinburgh on January 31 entailing great loss in apparatus and specimens. No amount of insurance can repair such damages.

THE government of India, besides recently establishing an Imperial Bacteriological Laboratory, has now taken a further step in the appointment of special sanitary officers, possessed of bacteriological knowledge, for each large cantonment. The information acquired in this manner cannot fail to place the sanitary laws of the Empire upon a more scientific footing as well as greatly increase the *data* available to the medical profession.

M. DAREMBERG, of Lyons, France, has found the exclusive use of phosphated milk of value in the preventive treatment of tuberculosis. He recommends the use of goat's milk as follows: "Phosphated milk can be obtained by making a goat absorb a daily dose of twenty grammes of powdered calcined bones mixed with ten grammes of sea salt and combined with bran, barley, or oatmeal and crushed carrots. In this way the phosphates are assimilated by the animal and supply the child with a reconstituent form of food."

SOME interesting points relating to the precision of information revealed by the microscope have been developed in a recent murder case before the authorities at Yonkers, N. Y. The details of the conflict indicated a hand-to-hand struggle. Three parties were arrested, the circumstances implicating two of them very positively. The coroner took parings from the finger-nails of all three and submitted them to a microscopist, who reported that he found blood on the nail parings of the third only. As the victim was an elderly woman, the next step in the argument is to discover the age of the person to whom the blood belonged.

THE crew of the American ship *El Capitan*, which has just arrived in New York harbor from Japan, have been victims on the voyage of what is known in seafaring vernacular as "moonblink." The captain reports that the men slept on deck in the moonlight for nine nights while passing through the China Sea. At first they suffered from night-blindness, and later they could not see at all on account of suppuration and ulcers of the lids. The constant bathing with salt water and the improved air after rounding the Cape of Good Hope helped to restore a healthier condition, but some of the men are still suffering, and one will probably lose his sight entirely.

CORRESPONDENCE.

To the Editor of THE MEDICAL NEWS.

SIR: I have just finished reading, with pleasure, your editorial on "Preference of the Diphtheria Bacillus for the Tonsil." I wish to suggest that you treat your cases of *nasal* diphtheria with the "dead air" method, by plugging the anterior nares with cotton, thus limiting the production of the baneful toxin in that inaccessible region, by shutting off the necessary *current* of air.

Very truly yours,

T. B. HILL, M.D.

THE RECENT EPIDEMIC OF DIPHTHERIA IN CHICAGO. RESULTS OF THE SERUM-ANTITOXIN TREATMENT.

[SPECIAL CORRESPONDENCE TO THE MEDICAL NEWS.]

DR. E. P. MURDOCK, Medical Inspector of this city, recently submitted a preliminary report of the work of the auxiliary medical corps of the City Health Department, the period of whose appointment terminated on the 21st of January. In his report Dr. Murdock says: "When, in the latter part of September, 1895, the daily reports of diphtheria gave indication that we were threatened with an epidemic of the gravest character in the history of the city, the assistant commissioner, Dr. F. W. Reilly requested me to give my attention to the situation and respond to the call of physicians for the administration of antitoxin, and such other duties as in my judgment would assist in staying the ravages of the disease. Accordingly I began my work by responding to the call of physicians for the administration of antitoxin, the verifying of diagnosis by bacterial examinations, and the relief of laryngeal stenosis by intubation. In connection with this work I also investigated the causes which led to rapid spread of the contagion, gave directions for isolation, made notes of

the environment, immunized children exposed, and co-operated with the attending physicians in all respects to restore patients suffering from diphtheria, and to protect the public from further exposure. Within twenty-five days I had treated ninety cases of diphtheria with only four deaths, immunized twenty-two children who had been exposed to diphtheria without a single case of contagion, and carefully noted the effect of treatment in all its phases, which led to the following conclusions, which were reported to the department:

1. "No evil or deleterious effects follow the administration of antitoxin which can be attributed to the use of the remedy either with diphtheria patients or with healthy children for protective purposes.

2. "No child treated for immunity has contracted the disease, no matter how much has been the exposure.

3. "All patients are benefited by the treatment when administered in time to accomplish any results with a reasonable hope of recovery.

4. "The administration of antitoxin does not in any way interfere with other treatment.

5. "Careful observations were made to determine the sources of infection and the agencies which led to the spread of contagion, and the following conclusions are submitted:

1. "Failure to isolate patients and prevent unlimited visiting and open communication with friendly neighbors, and even the public schools.

2. "Failure to destroy or properly disinfect clothing and other material which had been in contact with the patients, and the lack of proper fumigation and cleansing of premises.

3. "The public character of funerals to the extent of exposing the body of a child dead from diphtheria to public visitation of friends and neighbors, they not only viewing the body themselves but permitting their children to come in immediate contact and even kiss the dead child's face; nor was this all, but the bodies of children who had died from malignant diphtheria have been taken into churches for public services, and their little playmates have acted as pallbearers without the least effort to even cleanse or protect the mouth or nostrils of the corpse.

4. "The unsanitary condition of water-closets, especially in districts where old outside vaults are still in use without washouts or sewer connections.

5. "Failure to report the so-called 'mild cases' which were exposed to indiscriminate contact with their little friends, from which many a malignant case developed."

From these causes he had traced about eighty cases of diphtheria with twenty deaths, all of which might have been avoided by proper precautions. The character of the epidemic, the variety of sources for the spread of the contagion, and the increasing inquiries for the use of antitoxin caused the work to grow to such an extent, and the demand from members of the medical profession for further assistance became so great, and at the same time the increase in the spread of the disease became so marked, that Commissioner Kerr determined to apply for more assistance through the organization of an emergency staff, and in support of this request it was shown that from thirty-four to forty-three cases of diphtheria were being reported daily, with a rapidly increasing number of deaths, and the necessity was urged of an organized systematic effort to control the ravages of this disease which was destroying more lives in a single year than had been lost from smallpox in a decade. A special appropriation having been secured by the Commissioner for this emergency, the following well-known physicians were appointed and organized into an auxiliary medical corps of the Chicago Health Department, for the control of diphtheria: Dr. Samuel J. Walker, Dr. Wm. K. Jaques, Dr. G. C. Krieger, Dr. Martin J. Ritter, Dr. Rosa Englemann, Dr. H. H. Latimer, Dr. W. A. MacFarlane, Dr. R. W. Hardon, Dr. Hamilton H. Forline, Dr. J. A. Egan, Dr. Frank S. Churchill, Dr. J. W. Walker, Dr. J. J. Clausen, Dr. A. H. Roler, and Dr. J. C. Brydges. The city was divided into districts, with an inspector placed in charge of each district, three being detailed to supervise funerals and prevent so far as possible the spread of contagion from this source. Their service began November 22, 1895. The inspectors were instructed to ascertain the facts about all cases of diphtheria in their respective districts, and to use all means in their power consistent with professional ethics and under authority of law, to conserve the true interest of the public for the control of this disease. They were further instructed that there was no desire on the part of the department to supplant or in any way interfere with the prerogatives of the family physician, but on the contrary they were strictly enjoined to communicate with the physician in charge, and if possible to meet him and coöperate with him in the work in hand, so that all assistance which could be rendered to the family should be administered through the agency of its own physician, thus sustaining as far as possible the relations which should exist between a physician and his families. They were also instructed, wherever it was possible, to determine by bacterial examination the true character of the disease; to learn whether antitoxin had been used or not, and if so, on what day of the disease, and the results; and at all times, so far as it lay in their power, to subserve the interest of the family physician, while protecting the public health.

Incubators and culture boxes or tubes were furnished for bacterial examinations, and such other supplies as seemed absolutely necessary for the work. A system of rules was formulated for the isolation of patients and the care of sick rooms which would justify the removal of diphtheria display cards by the inspector, when, in his judgment, all sources of the spread of contagion were absolutely shut off, and a communication was addressed to the medical profession and the public, setting forth these points and asking their co-operation.

From the detailed reports of the members of the corps, submitted from time to time, the appended summary of the work performed has been compiled. Comment upon these figures is deferred until cases now under treatment are reported on. The summary embraces all cases disposed of up to and including January 10th.

For the present Dr. Murdock contents himself with saying that he is entirely satisfied with the result; that the members of the auxiliary corps have reason to be gratified

with the showing, and that the figures are commended to the attention of the medical profession as a contribution to the study of the antitoxin treatment and prevention of diphtheria comparing favorably with the best results obtained elsewhere.

SUMMARY OF WORK OF ANTITOXIN CORPS OF HEALTH DEPARTMENT, NOVEMBER 22, 1895, TO JANUARY 10, 1896.

Total number cases diphtheria visited,		1221
At request of attending physicians	1169	
Charity cases, (no physician in attendance)	52	
		1221
Total number found convalescent on arrival,	63	
" " " dead " "	50	
All other cases,	1108	
Total number found suffering from diphtheria,		1108
" " treated with antitoxin,	1047	
" " in which antitoxin was not used,[1]	61	
		1108
Total number recovered under antitoxin treatment,	961	
" " died " " "	86	
		1047
Death rate under antitoxin treatment 8.93 per cent.		
Total number in which antitoxin was not used,[1]	61	
" " of those known to have died,[1]	32	
Death rate where antitoxin was not used 52.46 per cent.		
Total cases treated with antitoxin,		1047
" " proved (bacterially) true diphtheria,	805	
" " diphtheria not bacterially proved,	242	
		1047
Total cases bacterially proved,		805
" recovered,	753	
" died,	52	
		805
Death rate 6.46 per cent.		
Total cases not bacterially proved,		242
" recovered,	208	
" died,	34	
		242
Death rate 14.87 per cent.		

RESULTS OF ANTITOXIN TREATMENT IN 805 CASES OF TRUE DIPHTHERIA (BACTERIALLY VERIFIED).

Treated on.	Total.	Recovered.	Died.	Death rate.
First day of disease,	61	61	0	0.00 per cent.
Second " "	187	184	3	1.60 "
Third " "	372	362	10	2.68 "
Fourth " "	109	92	17	15.60 "
Later than fourth day,	76	54	22	28.94 "
	805	753	52	6.46 per cent.

Total number of children and others exposed to the disease and treated with the protective dose of antitoxin, 810

Total number of these who subsequently contracted diphtheria, 4

[1] "Not used," either because the patients were dying when first seen, or because the families or attending physicians changed their minds after calling in the department physician and refused the antitoxin treatment.

SOCIETY PROCEEDINGS.

NEW YORK NEUROLOGICAL SOCIETY.

Stated Meeting, February 4, 1896.

EDWARD D. FISHER, M.D., PRESIDENT.

SCLERODERMA.

DR. LEONARD WEBER reported a case of scleroderma with the following history: Mrs. C., a farmer's wife, of German parentage, was first seen October 26, 1894. She was of medium height, quite stout, of pale and sallow complexion; hair of scanty growth. She was intelligent, and physically able. There was no hereditary or acquired taint. She had had five children and one miscarriage. During the thirteen years of married life she had had two severe uterine hemorrhages, one after a labor, and the other after a miscarriage. Three years ago she noticed that the right arm and side of the neck were becoming stiff and hard in patches. Gradually "strings" of cicatricial-like tissue developed beneath the cutis of the upper arm and wrist. There had been no contractures, and these strings had developed in the first year and a half of the affection. The sclerosis extended a little to the left of the median line. There was a small sclerotic patch on the chin and in the lower lip. The sense of touch, and the feeling of pain, and the muscular action were apparently normal. The surface temperature of the sclerosed area was about one degree lower than that on the other side. There was an effusion of fluid in the pre-patellar bursa associated with some tenderness. The right knee was also tender, but showed no effusion. She also complained of rheumatoid pains in the lower extremities and muscles, but not specially distributed along the nerve trunks. The tendon reflexes were normal. Her appetite was good, and for several months previously she had had a slight looseness of the bowel. The urine had a specific gravity of 1014, but contained no albumen or sugar. The treatment was directed first to improving the general condition—giving quinin, sodium salicylate, sodium bicarbonate, and small doses of morphia to check the diarrhea. After this she was given increasing doses of Fowler's solution, but there was no improvement in the scleroderma. On January 25, 1895, treatment was begun with the English thyroid tablets, giving five grains, three times a day. All other treatment was suspended except the use of elixir of calisaya. When seen on April 2d, after having taken 100 of the tablets, she was very much improved; the cicatricial strings and the patches on the lip and chin had almost entirely disappeared. When seen again, October 3, 1895, she had taken 280 tablets, stopping for two weeks after each 100 tablets. The improvement had been steady and marked. The speaker said he was disappointed that the patient had not come this evening, as had been expected she would do. Neurologists were inclined to look upon scleroderma as a disease of trophoneurotic origin, and he had nothing new to add regarding the etiology or pathology of the disease. All that he wished to say was that when last seen this woman was *practically* cured.

DR. B. SACHS said that he was reminded of a patient who had come under his notice about three years ago—a widow of about 45 years. She had had extensive sclerodermatous patches for a number of years previously. When first seen by him, a course of massage and galvanic treatment had been adopted, but only very trivial improvement had been observed. She was very slow in all her movements, and was unable even to pout her lips. Her face presented the appearance of one with double facial hemiatrophy. She also had very abundant deposits of yellow pigment in the hands, particularly in the spaces

between the knuckles. In January, 1895, she was placed on the thyroid treatment, receiving two to five grains of the pulverized extract of thyroid, three times a day. She did not return, as directed, after a week, but instead remained away for three weeks. At this time she was so greatly emaciated that he had since been led to employ the thyroid as an anti-fat remedy before he had read anything about it in the German journals. But aside from this emaciation, the scleroderma had undergone a most remarkable change for the better, and the spots of pigment had disappeared. When seen last, some months ago, she was apparently cured. The question of whether or not the scleroderma was a thyroid disease, he was not at present willing to discuss. He was fully convinced that the scleroderma was not *cured* by the thyroid; it had been necessary to keep his patient on about two grains a day of the thyroid.

DR. PEARCE BAILEY referred to a case of typical scleroderma which had lasted for five or six years, and had resulted in immobilization of the elbow and the knee. He had given her Parke, Davis & Co.'s thyroid extract, five grains, three times a day, for a month or two, but without any appreciable improvement.

DR. WILLIAM H. THOMSON said that he would certainly recommend the trial of a thyroid extract made by another firm, because he had known a case to undergo relapse after changing from the thyroid extract of another manufacturer to that of the firm referred to by the last speaker.

DR. WEBER, in closing the discussion, said that there had been very little loss in weight in his patient during the thyroid treatment—about fifteen pounds after having taken the first 100 tablets. When last seen he had not noticed any great loss of flesh. The disease was very chronic, and he feared there would be a relapse.

SYMPATHETIC NERVE SYMPTOMS WITH ULNAR PARALYSIS FOLLOWING DIPHTHERIA.

DR. B. SACHS presented a girl of 14 years, who still exhibited the remnants of a poliomyelitis of the right upper extremity, which came on when she was about 18 months old. It would be noticed, he said, that the atrophy of the arm was extreme. In March, 1895, this girl had had diphtheria, and after this had developed an atrophic paralysis of the left upper extremity, chiefly of the muscles of the hand, and more particularly the interossei muscles. This condition was associated with a narrowing of the palpebral fissure on the left side, and it was for this reason that he presented the case. There could be no doubt that ever since the beginning of the poliomyelitis the left side had been entirely normal up to the attack of diphtheria. Examination had shown that there was a diminution of all the forms of sensation in the ulnar distribution on the left side. The condition of the hand might be possibly due to a poliomyelitis, but owing to the presence of sensory disturbances and the very acute onset of the trouble after a diphtheria, this could be safely excluded. The diagnosis, therefore, was a peripheral neuritis coming on after diphtheria. The curious point was the association of the sympathetic nerve symptom with this peripheral neuritis. The only way he could account for it was by supposing that the affection must have been very near the issuance of the roots of the spinal cord, and in that part where there were communicating branches between the roots and the sympathetic nervous system.

DR. C. A. HERTER said he was not sure that the possibility of the cord being involved at the level of the ilio-spinal centre could be excluded. The narrowing of the lid and the contraction of the lid on that side would suggest very strongly that the cord was involved, or the roots were involved close to the cord. He had never seen that symptom in a peripheral lesion, which without any doubt could be said to be strictly limited to the peripheral nerves. He had seen this ocular symptom several times in cases of crushing injury to the spinal cord.

DR. WILLIAM H. THOMSON said he agreed with the last speaker that the case appeared to be one of localized myelitis. Such cases were not unknown in connection with pheripheral palsy. It would be very difficult to account for that association on any theory of peripheral neuritis. For a good while he had given up the idea that a diphtheritic paralysis was necessarily a neuritis; he thought the changes were very often characteristic of pure degenerative processes rather than inflammatory processes. More than once had he met with cases which could be explained better on such a theory.

DR. SACHS said that the case was an unusual one, and had been very closely studied by him for a number of months. He had at first supposed there was a myelitis or a poliomyelitis on the left side, but he had abandoned that idea because of one symptom which would be hard to explain if there were only a myelitis, *i.e.*, the sensory disturbances in the arm. He saw no reason to depart from the diagnosis he had expressed. He believed that this case differed from others of diphtheritic palsy in that instead of the pheripheral portion of the nerve being affected by the diphtheritic poison, the part of the plexus very near to the spinal cord was affected—in other words, the nerve roots. Between the anterior roots and the sympathetic system were communicating branches, and if one or more of these branches were affected, the influence of the ilio-spinal centre would be cut off. This would explain the loss of function without supposing an invasion of the cord.

DISCUSSION ON THE DIFFERENTIATION OF SKIN AND MUSCLE SENSATIONS AS A MEANS OF DIAGNOSIS.

DR. C. A. HERTER said that he believed dissociation of sensation was met with, especially the loss of pain and the temperature sense, with only a partial loss of the tactile sense, in cases of peripheral neuritis. He had seen cases of alcoholic neuritis in which in certain areas of lost sensibility this condition was present, and this was particularly true late in the disease when the period of hyperesthesia had passed. But he had not met with any cases of absolute loss of pain and temperature sense with preservation of the tactile sense except those which might be reasonably supposed to be instances in which the lesion could be located in the spinal cord. He called attention especially to cases of hemorrhage into the spinal cord, and particularly into the central canal. About a year ago

he had had a patient in the City Hospital who had fallen into a hatchway and struck on the right shoulder. This man said that immediately after this accident he had been partially paralysed in all four extremities. When seen by the the speaker, about two months later, there was an atypical Brown-Séquard paralysis. His right leg was completely paralyzed; the left leg exhibited loss of sensation to pain and temperature with perfect preservation of tactile sense. The internes of the hospital had made a diagnosis of syringomyelia, as had been expected. After two or three months, there had been a gradual return of pain and temperature sense. This case was undoubtedly one of hemorrhage into the gray substance of the cord. He had noted in the recent literature reports of half a dozen cases of a similar character. From this it appeared to be an established fact that hemorrhage into the central canal and gray matter of the spinal cord was very apt to give rise to this symptom. These were the only conditions under which he had met with this particular dissociation of sensations.

DR. SACHS said that it had probably been the common experience with most neurologists that whenever the pain and temperature sense were diminished or lost, and the tactile sense remained, the case was looked upon as a gliosis or a syringomyelia, particularly if associated with atrophic palsies in the parts where the sensory disturbances were manifest, and the reflexes altered in the lower extremities, showing on the whole a process most marked in the cervical portion of the cord. His experience had led him to doubt the pathognomonic value of this special symptom. Many years ago Weir Mitchell had described this dissociation of sensation in injuries of the peripheral nerves without attaching much importance to the symptom. The cases in which the speaker had observed it, were several of syringomyelia and one case of Pott's paralysis. It was the occurrence in this last disease that had led him to give this subject considerable thought. This patient, an adult, was still under treatment for the disease, which had been progressive. When first seen by the speaker, the man had been supposed to be suffering from vague rheumatic pains, but an incipient kyphosis had been found, and other symptoms indicating Pott's disease and Pott's paralysis. On making the sensory examination, he had been greatly surprised to find a very distinct dissociation of sensation in exactly the order observed in cases of syringomyelia. He had therefore been inclined to think at first that there must be some central changes in the cord in this case, but further progress of the case had shown it to be simply one of Pott's paralysis and nothing else. At the present time this man had spastic rigidity of the lower extremities without any involvement of the bladder, or other symptoms pointing to marked myelitic changes. Moreover there was now complete loss of every form of sensation. He was inclined to regard the condition therefore as having been due to the first impact of the vertebral trouble—that in this case it was practically a root trouble. We were likely to get this dissocation in all these diseases beginning, not in, but around the spinal cord, choking up some of the root fibres.

Six years ago he had seen a case presenting distinct atrophic paralysis in both upper extremities, with slight increase in the reflex in one lower extremity, and with a distinct dissociation of sensations, as seen in syringomyelia. The man gave a specific history. The progress of this case had shown that in all probability it was one of localized specific meningitis around the cervical portion of the cord. The disease had become absolutely stationary; he had developed no other symptoms, and yet there was loss of tactile sense and absolute loss of the muscular sense, with preservation of the pain sense. The temperature sense was diminished. Such a case showed that we must not attach too much importance to that special form of dissociation of sensations which had been associated with syringomelia. He had still another case under observation—one of gliosis, in which there was some dissociation of sensation, but not exactly of the kind ordinarily described as present in such cases. This symptom of dissociation, he thought, would occur where the central gray matter was affected, whether from hemorrhage or central gliosis. The greatest importance should be attached to the fact that it was a symptom of

DR. N. E. BRILL said that about ten years ago he had reported a case which would corroborate the position taken by Dr. Sachs. It was one of fracture of the lamina of the fifth cervical vertebra. The patient was then 30 years of age, and the fracture had occurred when he was about ten years of age. When seen by the speaker he had presented marked signs of compression of the cord with some anomalous muscular dystrophies. Dr. Sayre had examined the case and found undoubted callus, and on pressure posteriorly, over the injured region, there had been a sensation of cold, which the patient had himself noticed previously.

DR. HERTER said that while he would agree with Dr. Sachs that damage to the posterior nerve-roots might be a cause of dissociation of sensations, his experience had been that it was ordinarily not so. In most cases in which the vertebræ were so fractured as to give rise to compression of the nerve-roots, and in most cases of tumor in which the posterior nerve-roots were implicated, all forms of sensibility were abolished at the same time. He had seen several cases of fracture of the vertebræ with pinching of the nerve-roots. In some of these the autopsies had shown that only the nerve-roots had been damaged. In these cases all three forms of sensibility had been lost.

DR. SACHS said that he did not wish to be understood as considering disease of the nerve-roots a frequent cause; he only wished to point out the possibility of such a cause.

DR. IRA VAN GIESON said that there was much reason to believe that the long fibres in the posterior columns conveyed pressure or tactile sensations. There was probably a small complement of fibres which also conveyed muscular-sense impulses. It seemed to him to be pretty definitely shown that the column of Gowers conveyed pain sensations. There were some cases which seemed to show that temperature sensation and pain sensation traveled together. The tract of Flechsig seemed to be

concerned with a conveyance of muscular impulse. In syringomyelia, the pain tract was liable to be interrupted; but whether this column of Gowers was interrupted, or the interruptions occurred in the cord, there was invariably an analgesia of the opposite side. When these tracts in the medulla were separated, so that tumors might destroy one or the other of them, it was found that Gowers's tract, in certain cases, conveyed temperature and pain sensation; Flechsig's column, muscular-sense impressions; and the posterior columns, tactile sensation and muscular sense. Regarding the association of muscular and painful sensations clinical evidence was conflicting. In some cases there might be a distinct loss of pain sensation, but not of temperature sensation. One might conclude, therefore, that in certain individuals the temperature-sense fibres passed along with the pain fibres, and that in other cases they pursued another course. He thought that certain reported cases of syringomyelia of traumatic origin had been nothing more or less than hemorrhages into the spinal cord. Hemorrhage into the spinal cord was liable to assume a columnar distribution in the lymphathics or perivascular spaces which pass in from the anterior spinal artery. In his opinion, a lesion of the posterior roots would result, not in dissociation of sensory impressions, but in destruction of several of them at the same time.

The recovery of lost functions, as shown in Dr. Sachs's case, was an exceedingly interesting topic. The only explanation seemed to be the cutting off of the conducting path at some particular level, and the seeking out of new channels of conduction in the spinal cord.

DR. A. WIENER said that he had also observed Dr. Sachs's case of Pott's disease, and had since then examined other cases regarding the dissociation of sensations. He had been surprised to see how often this occurred. He had, however, never yet found in any particular case such a complete absence of pain and temperature sense as in syringomyelia. If the temperature and pain senses were simply diminished, the lesion might be at the roots or at the cord, but where they were completely absent we could be pretty sure about placing the lesion within the gray matter of the spinal cord.

DR. SACHS said that Dr. Van Giesen expected all forms of sensation to be abolished when there was a lesion affecting the posterior roots. In reply, he would say that a case had been reported some years ago by Thompson, in which there was clinically a distinct nuclear palsy, yet at autopsy there was found to be an infiltration of the third-nerve root-fibres, and this infiltration had evidently choked up some of the fibres, but not all of them. In the case of specific disease, it had been shown that a lesion might affect part of the root without involving all the fibres; hence, he felt that dissociation might after all be due to partial affection of the posterior root-fibres.

DR. ONUF said that if we assumed an affection outside of the spinal cord we must assume that it is at the point of union of the two roots, where the sensory fibres had passed the spinal ganglion and joined the motor roots. It was at this point that the communicant branch of the sympathetic nreve, which conducts the pupillary fibres, entered. Such a combination of symptoms could not be explained by any other lesion. Dr. Sachs's patient showed impairment of tactile sensation for the sense of pressure and that of pain. It was hardly possible to assume that such a combination of symptoms could be produced by an affection of the gray substance of the cord; we must assume an affection of the eighth cervical and first dorsal nerve close to the point where the motor and sensory roots meet the communicant branch which conveys the fibres to the pupil.

DR. HERTER said that we must distinguish quite sharply between the cases in which pain and temperature sense were absolutely lost and the tactile sense perfectly preserved, and those cases in which the tactile sense was nearly perfect, and also between cases in which tactile sense was perfect, but there was a partial loss only of the pain and temperature sense.

DR. VAN GIESON said that the example quoted by Dr. Sachs was hardly a parallel, for in that case the anterior roots were involved. The fibres of the posterior roots all had different functions, while the anterior root was strictly motor. He was willing to admit that there might be chronic processes which would only involve certain fibres of a root.

DR. CHARLES L. DANA said that: (1) Differentiations of cutaneous sensations did not occur in peripheral neuritis except to a very minor extent. The only exception which he recalled was the doubtful one of Norvan's disease, and perhaps of leprous neuritis. (2) Differentiations of cutaneous sensations occurred in spinal-cord diseases, but only completely in those diseases involving the central part of the cord (traumatic hematomyelia, syringomyelia). In columnar and spinal-root disease, like tabes, the differentiations occurred, but were never complete—*e.g.*, complete separation of touch from pain or temperature anesthesia—at least this has been his personal experience. (3) Differentiations of cutaneous sensations occurred most strikingly and completely in ponto-bulbar lesions, and were of diagnostic value here, taken with other symptoms. (4) Differentiations of cutaneous sensations did not occur in any sharp extent in organic cortical lesions. The cutaneous "locality-sense" was the one most singled out. (5) Differentiations of cutaneous sensation did not occur completely in hysterical anesthesia, though the pain sense was most involved. There were some exceptional cases in which the pain sense was distinctly singled out. The differentiation of cutaneous sensations, therefore, was least in peripheral-nerve lesions, increased in spinal-root lesions, and again in central spinal-cord lesions. It was most striking and complete in ponte-bulbar lesions, and became very slight again in cortical lesions. Through the whole series the pain-sense was the one oftenest differentiated, except in cortex cerebri.

THE PRESIDENT said that in cases of transverse myelitis, although there was a loss of sensation, the pressure sense might remain. It was possible to imagine a lesion from hemorrhage into the cord, which would follow out exactly the lines of syringomyelia. It must be, however, a very rare condition.

PHILADELPHIA COUNTY MEDICAL SOCIETY.

Regular Meeting at the Philadelphia College of Physicians, February 12, 1896.

DR. J. C. WILSON IN THE CHAIR.

AFTER reading of the minutes, the Chair announced that the President's annual address would be deferred in order to give the entire time to the guest of the evening. He then introduced Dr. Simon Baruch, of New York, who had been invited to address the Society on *The Importance of Precision in the Technique of Hydrotherapy.* Dr. Baruch said that this invitation was a gratifying evidence of the awakening of the profession to the merits of hydrotherapy. He gave as his reasons for warmly advocating water, that he had obtained a large and favorable experience with it, and had found the average practitioner as poorly informed upon it as he once was. Dr. Baruch referred to having made the first plea for the Brand bath in typhoid, in 1889, which was not favorably received. The fact that by persistent agitation it has come about that the method is now practiced and taught in many hospitals and colleges, has encouraged him to continue his propaganda. Water is the most flexible remedy we possess, because we may vary its effects by a judicious use of temperature, pressure, duration, and technique. Dr. Baruch then discussed the reasons for the apathy of the profession on this subject. He regarded the principal cause to be an inexact technique, each man modifying it to suit his own ideas. He then illustrated his subject by giving the rationale of the Brand bath and its application in fulfilling the chief indications in typhoid fever, which arose from the overwhelming of the nervous system by the toxemia. He described how a strict Brand bath of 65° for fifteen minutes, with constant friction, repeated every three hours, when patient's temperature is 102.5 or over, arouses the nerve centers step by step, overcoming the toxemia. He insisted that the Brand method, which is definite in its technique, must not be charged with failures attending its modifications, any more than Bergman's aseptic surgical technique should be charged with failures attending the neglect of any one of its exacting demands. Dr. Baruch referred to the diagnostic value of early bathing. He begins with a bath of 90°, follows with 80°, and then 75° every three hours. If the rectal temperature is reduced two degrees or more typhoid fever is excluded; the smaller the reduction of rectal temperature, the more positive is the diagnosis of typhoid fever.

In the treatment of pneumonia, Dr. Baruch has devised a method whose success warranted him in commending it to his colleagues. He administers 15 to 20 grains calomel, and then envelops the chest with a thick linen compress, slit in the axillæ, to fit it high up, soaked in water at 60° F., and covered by a flannel bandage an inch wider and larger. This is renewed every hour if temperature is 100° to 102°, every half-hour if higher. No medicines or stimulants are given, except, in alcoholics; hypodermics of strychnine for heart failure. The results have been very favorable in his private practice and that of Dr. Harry Pemberton, of Long Branch. In the Manhattan Hospital, the general mortality of pneumonia has been reduced one-half, while in cases coming under treatment before the fifth day the mortality is as 12 per cent. to 17 per cent.; all the cases having been treated by Drs. Daniels, Knickerbocker, and himself, and reported by Dr. A. J. Wittson. Dr. Baruch explained the *rationale* as resting upon the repeated gentle shock and stimulus to the periphery conveyed to the nerve centres, deepening the inspiration and removing obstructions in the bronchi; invigorating the heart by widening the area of the cutaneous vessels. These cases rarely resolve by crisis. While the symptoms subside very soon, they seem to recover slowly but surely.

That precision in the technique is as important in chronic diseases as in the acute may be readily demonstrated. So little is this understood that a certain hydrotherapeutic establishment announces an easy way to prescribe water by presenting the following, to be sent by the physician: "Give bearer a douche, pack, barège bath—the physician may strike out the bath not wanted." One may as well order a patient to obtain quinine, strychnine, or morphia without stating dose, method, and time of administration, etc. A prescription for a "bath" should state temperature, duration, and pressure as well as kind of "bath" wanted. The terms cold, hot, tepid bath should be abolished, and definite temperatures prescribed instead. A cold bath in New York city would be 40° in midwinter, 80° in midsummer.

DR. BARUCH cited phthisis as a disease remarkably amenable to hydriatic treatment, given with judgment and precision; as demonstrated in the Montifiore Home, where a patient may be seen now who has gained thirty-three pounds. A gradual, slow accustoming of the patient to low temperature and high pressure is advisable in order to elevate the patient's nutritition and hematosis.

In neurasthenics, Dr. Baruch finds it important to vary the technique, temperature, and pressure with the type and condition of the patient. A cold douche which would set an erethetic neurasthenic wild would act favorably upon one of the depressed type.

Dr. Baruch cited from the lectures of two eminent neurologists directions for using "the cold-water treatment," in order to warn against their indefiniteness and recklessness, and against the error of regarding the most agreeable bath as the most useful.

He detailed his method in chlorosis to be the standing in water at 100°, and gentle but rapid ablutions of the patient in water at 90°, reduced daily one degree until 60° are reached, followed by drying and friction.

In conclusion, he objected to hydrotherapy being charged with the failures due to an inexact technique and lack of judgment in its application.

DISCUSSION.

DR. TYSON expressed himself as entirely in accord with the reader's views regarding the life-saving value of the Brand bath in typhoid. He was free to acknowledge that he had not followed the strict technique of Brand, inasmuch as he was under the impression that Brand bathed whenever the temperature reached 102° F. He

had, therefore, in hospital practice bathed his patients every two hours, instead of every three, without harm. Dr. Baruch had informed him, in response to an inquiry if his method was correct, that the objection to these faequent baths was the discomfort produced by them, and that he [Dr. Baruch] preferred to follow strictly the three-hours method, because it had given the best results. Dr. Tyson would therefore in future adopt the strict technique of Brand, which is a great improvement on all other treatments of typhoid. He had found the Burr rubber bath, given in bed, a good substitute for the tub.

DR. HOBART A. HARE said he believed in an exact technique, and commended the reader for insisting upon it. He did not regard the Brand bath as a heat reducing bath, but as a stimulant to the nervous system, as held by the reader. He was not sure but that the fever was salutary in most cases and should not be suppressed too violently. In pneumonia we have increased leucocytosis even if we have a high temperature, and may be the case within the body in typhoid. At all events the use of the coal-tar antipyretics is indefensible, because it has been proved that they diminish oxidation. Cold baths increase metabolism. It has been shown by Liebermeister, Roehirg, and others that the internal temperature rises after cold baths.

DR. TURCK, of Chicago, expressed surprise that the Brand method should require discussion or defense in Philadelphia, where J. C. Wilson has so triumphantly indicated it years ago. He regarded Dr. Baruch's insistance upon making the technique of hydrotherapy exact, as of great importance. Dr. Turck had devised a method of relieving internal congestion by placing the patient into a tub of water at 98°, and gradually raising the temperature until 120° were reached. When the skin was intensely red and the surface vessels well filled, he takes the patient out and rubs him with blocks of ice, dries him, and puts him to bed. He has found this method useful in any disease manifesting internal hyperemia, and has demonstrated its *rationale* in animals by vivisection.

DR. CROZIER GRIFFITH does not regard the cold bath as useful in the broncho-pneumonia of children. He prefers very hot baths and finds these stimulating and effective.

DR. ANDERS said that he values the cold baths in typhoid, but they were objectionable in many respects, and he regretted that there were no substitutes. He had often favored the addition of alcohol to calm the fears of patients and friends, and secure consent to cold baths, if so treated. The Burr bath he regarded as very useful, because it enabled one to lower the temperature gradually and not shock the patient too much. A feeble heart was his greatest contra-indication to the cold bath.

DR. WHARTON SINKLER said that in neurasthenia we have no more valuable remedy than cold water judiciously used. He referred to the dripping sheet as exceedingly valuable for insommia. He had seen a hot bath reduce temperature two degrees.

DR. T. J. MAYS spoke in warm commendation of the ice treatment in pneumonia, and said that the application of ice-bags over the seat of the involved area hastened resolution, removed exudates and acted favorably upon all the symptoms.

DR. BARUCH in closing the discussion thanked the Society for their generous and lenient criticisms. He felt gratified by the cordial reception of the principles he advocated. The reason why the advocates of the bath treatment resent the prominence given to high temperature is that the proper understanding and adoption of the baths have suffered from this bugaboo, viz.: that cold water has always been regarded as an antipyretic. This was illustrated forcibly by a conversation he had with an eminent Berlin professor in 1890, in the wards of the Urban Hospital. His expectation of meeting a warm advocate of the Brand method was rudely shaken when the professor said, "Weg mit der Antipyrese." Because antipyrine was an antipyretic and had proved injurious, and because he classed cold water as an antipyretic, he condemned both with the same anathema. The cold bath reduces temperature but little; its good effect is entirely upon the nervous system. The increase of temperature after cold baths found by Liebermeister is true, but in these experiments very low temperatures were used, far lower than 65° (and in health). Indeed, Liebermeister himself, when teaching in Basle in 1867, applied cold baths in typhoid for temperature reduction, whose continuance he endeavored to maintain by large doses of quinine during the night. But while this was more successful than the medicinal antipyresis by salicylic acid and quinine then in vogue, Liebermeister abandoned his own method for that of Brand, as did most German clinicians. This illustrates clearly, Dr. Baruch said, the importance of always stating temperatures. While a fifteen-minutes bath of 65° F. reduces temperature somewhat, a shorter bath of 55 or less increases it by enhancing oxidation. Dr. Baruch did not share the surprise expressed by Dr. Turck, for he found much room for missionary work to convince the profession that the Brand baths were the best treatment for typhoid fever. When suggesting the cold baths in consultation he is not infrequently met by objection on account of patient's feeble pulse, just as has been objected here to-night. Dr. Baruch desired to emphasize the fact that cold water judiciously applied is the most potent heart tonic we have. There is no better example of asthenia with temporary heart failure than the fainting spell of a woman. The pulse is feeble or absent, respiration shallow, sensation and motion are practically abolished. Do we not dash cold water upon the patient, with the result of stimulating the nerve centres, to which the lungs at once respond by a gasp? the heart's response is shown by returning color to the pallid cheek. Here is a temporary cardiac failure; in typhoid it is prolonged, and due to toxemia. Dr. Baruch presented the following chart giving the summary of a case of typhoid now under his care, showing that without stimulants, heart beating 130 to 140, with a temperature of 104 to 105.6, was kept in good condition, being reduced to 116 to 120 by baths of 76° for twenty minutes with friction. He regarded the report as the best reply to the objections that cold baths are contra-indicated in heart feebleness. This patient

became cyanotic whenever the bath temperature was below 76° F., and yet she had practically no stimulants.

poisoning by arsenic, one does not want long descriptions of cases; a few typical cases will anwser; but if the entire

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	23	24	25	26	27	28	29	30	31	1	2	3	4	5	6	7	8	9	10	11	12
Highest temperature	102	104.4	105.1	105	105	104.6	104.8	104.2	104	103.8	104	103	103	102	102	102	101	101	101	100.6	100.6
Lowest temperature	99	101	103	103	103	102	102	102	103	102	102	102	101	101	101	101	101	100	99	99	98
Highest pulse			130	132	130	130	140	140	128	130	121	124	122	122	118	114	106	106	100	106	94
							(After Baths)														
Lowest pulse			116	116	116	114	116	120	114	120	110	110	114	108	108	106	104	94	94	94	88
Nourishment			5¹⁵	5¹⁰	5¹⁰	5¹⁷	5²⁷	5²⁸	5³⁴	5⁴⁹	5⁴⁰	5⁴⁴	5⁴⁷	5⁴⁸	5⁵⁶	5⁵⁹	5⁶⁰	5⁴⁸	5⁴⁸	5⁵⁵	5⁴⁵
Water	0	0	0	0	0	0	5²³	5²⁴	5²⁷	5¹⁴	5²⁵	5¹³	5²²	5¹³	5¹⁴	5⁴	5⁴	0	5¹⁸	5¹⁶	5¹¹
Sleep			5½ hr	9 hr	5 hr	5 hr	5½ hr	5 hr	8½ hr	10 hr	8½ hr	7 hr	7 hr	5½ hr	8 hr	4½ hr	7 hr	8¾ hr	7 hr	8½ hr	9 hr
Stools			4	4	4	8	4	3	6	3	4	5	9	5	0	2	2	2	3	3	4
Urine (mostly lost with stools)			5¹⁷	5⁷	5⁷	5⁷	5⁸	5¹⁷	5⁴	5¹²	5¹⁸½	5⁷	5⁶	5¹²	5³¹	5¹⁴	5¹⁹	5¹⁶	5¹⁹	5¹⁸	5¹²½
Baths		1	76° 5	70° 5	70° 5	70° 7	80° 6	78° 6	80° 5	80° 6	80° 5	80° 2	80° 1								
Stimulants	0	31	20 m 37	10 m 5²½	12 m 0	20 m 5½	20 m 5⁴½	20 m 0	20 m 0	20 m 0	20 m 31	20 m 0	20 m 0	0	0	0	0	0	0	0	0

DR. BARUCH desired it to be understood that there are substitutes for the Brand bath. The sheet-bath, for instance, in which successive parts are douched and rubbed until they cease to warm up, is a good substitute. It is only necessary to understand the principles of hydrotherapy and the therapeutic indications of a case to devise a bath that will prove efficient. Dr. Baruch was glad to accept the clinical testimony of Dr. Mays in favor of the ice treatment of pneumonia. But he could not understand how the local external application of ice could exercise so direct an effect upon the subjacent inflamed lung, since he had been told by Dr. H. C. Coe that he had often seen the abdomen almost frozen by cold without producing any effect upon the subjacent peritonitis. The cold-compress method advocated by him seemed more rational and less disturbing to the patient.

REVIEWS.

A SYSTEM OF LEGAL MEDICINE. By ALLEN MCLANE HAMILTON, M.D., and LAWRENCE GODKIN, Esq., assisted by EMINENT COLLABORATORS. In two volumes. Vol. II, 680 pages and index. New York: E. B. Treat & Co.

THE general features of this publication were noticed in the review of the first volume. In this volume a considerable number of topics are discussed. W. R. Hornblower contributes a few pages on the duties and responsibilities of medical experts. The articles, being written by specialists in the respective departments, are, of course, trustworthy and representative of the existing state of the sciences, but there is a general tendency to diffuseness and a want of systematic arrangement in the order in which the articles are printed that leave an unsatisfactory impression on the reader. There is too much detailed case-reporting. In a work of this character the collection of cases from which judgment is to be drawn cannot be too large, but the *data* must be studied out and condensed by the writer of the article, so that those who consult the book may be able to determine easily the inferences to be drawn. Thus, in discussing

list of reported cases could be tabulated so as to show the most frequent time of origin of symptoms, and duration, etc., the table would be of great value. We do not think it in good taste that extensive extracts should be made from von Krafft-Ebing's book.

The volume is freely illustrated.

PREGNANCY, LABOR, AND THE PUERPERAL STATE. By EGBERT H. GRANDIN, M.D., Consulting Obstetric Surgeon of the New York Maternity Hospital; and GEORGE W. JARMAN, M.D., Obstetric Surgeon to the New York Maternity Hospital. Illustrated with forty-one photographic plates. Philadelphia: The F. A. Davis Company, Publishers, 1895. Pp. 261.

A COMPANION volume to Obstetric Surgery, by the same authors, this book partakes of the same nature as far as its makeup is concerned. The photographic plates on the whole are excellent, but there are a few that are altogether unnecessary, inasmuch as they fail to impart any knowledge. The book is essentially clinical in its teaching, and in this respect is vastly superior to the Obstetric Surgery, which was largely composed from studies upon the manikin.

It is also eminently practical, the vast amount of theoretic and statistical information being made subordinate to the *facts* as encountered in the management of an ordinary gestation, labor, and puerperism. Only when absolutely necessary are the anatomic, embryologic and pathologic data inserted, and in this respect the book may rightly be regarded as unique. Drs. Grandin and Jarman have undoubtedly presented a useful volume, which will be especially serviceable to students and the more recent graduates in medicine. Unusual care seems to have been expended in the presentation of the mechanism of labor, which, unfortunately, is not as generally understood as it should be for the proper management not only of the abnormal but of the normal labor as well. The care of the infant is also ably discussed, and to a larger extent than is usual in works of this description.